ADDRESSES AND ORIGINAL ARTICLES

PRECANCEROUS LESIONS OF THE ALIMENTARY TRACT.*

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LECTURE III.

Benign Tumours as Precursors of Cancer.

IT is an easy matter to compile a list of well-thenticated instances of malignant disease arising pre-existing simple tumours. In certain situations d in certain circumstances papillomas of squamous ithelial surfaces are notoriously prone to pass into malignant phase. Warts of the lips and tongue, for ample, must always be viewed with the gravest spicion, and measures for their eradication instited without delay. Too often these apparently nign formations are merely a passing phase in the oliferative process, comparable to the early papilloatous stage of experimental tar cancer. In the me way the scrotal cancer of mule-spinners and orkers in pitch and tar, and X ray and radium ncer, nearly always pass first through a phase of parently benign proliferation. Malignant melanoma ising in simple moles, the sarcomatous metaorphosis of uterine fibroids, and of the stroma of rtain fibro-adenomas of the breast are further cases point.

In the alimentary tract the outstanding example a definitely precancerous lesion of a benign neoastic kind is the adenomatous polypus of the colon, ctum, and stomach. It is only within recent years, wever, that the very considerable frequency of estinal polypi and their pronounced tendency to alignant change have come to be adequately recoged (Lockhart-Mummery 1923, Erdmann and orris 1925, Dukes 1925–26, Schmieden 1926, Lockrt-Mummery and Dukes 1928, Kutsukake 1928, sman 1929). In the stomach similar tumours cur, but with much less frequency. Here also it uld seem they must be regarded as definitely prencerous (Ménétrier 1888, Ménétrier and Clunet 07, Mills 1922–23, Brunn and Pearl 1926, Stewart 29, Miller, Eliason, and Wright 1930).

he tumours in question are histologically adenomatous, l start as small flat patches of mucosal overgrowth which n become polypoidal. There is much variation in the nber present. In the post-mortem room solitary polypi most common, and cases with a few scattered polyps, n two to a dozen or so, come next in frequency. In series of 127 autopsy cases, solitary polypi of the colon sted in 70, several polyps in 43, and in the remaining 14 y were present in large numbers. In the stomach a newhat similar state of affairs exists. In my series of cases there were single polyps in 33, several polyps in and numerous polyps in 12. Rarely gastric polypi rflow, as it were, into the duodenum, and there may be yps in the colon as well.

The term "polyposis intestini" is reserved for a y rare but important variety of this disease, in ich the mucosa of the large intestine is thickly dded with innumerable polypoidal adenomata. s would appear to be merely an extreme grade he condition of multiple polypi already mentioned, e it not that there is a constitutional hereditary tor non-existent in the more banal variety. Dukes (1930) has collected the pedigrees of the 13 families so far reported as suffering from this disease, and the result is a convincing demonstration of its hereditary character and relation to carcinoma. The disease attacks several members of a family, the predisposition to it is transmitted as a Mendelian dominant from one generation to the next, and almost invariably it ends in carcinoma of the colon or rectum.

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ORIGIN OF POLYPI.

How do polypi of the stomach and intestine arise? Only a small proportion have their origin in some definite pre-existing inflammatory lesion, ulcerative colitis, tuberculosis, especially the hyperplastic type, simple inflammatory stricture (Lockhart-Mummery 1923). In most cases there are no assignable ætiological factors, although a chronic inflammatory origin is hypothecated by both Ménétrier (1924) and Ewing (1928). *Anatomically*, the identity between the individual lesions of this common variety and those of the rare familial type—they appear to be indistinguishable—is against a local inflammatory causation, as is the fact that cases of widespread multiple polypi are occasionally met with in which stomach, duodenum, and colon are all involved.

TABLE XVII.—*Incidence of Carcinoma and Polypi of the Colon.*

(12,800 post-mortems at all ages.)

Period.	Autopsies.	Carcinoma coli.		Polypi of colon.	
		No.	Per cent.	No.	Per cent.
1910–21	5880	200	3·4	17	0·29
1922–28	5105	191	3·8	34	0·67
1929–31 (in part) ..	1815	79	4·3	76	4·19

TABLE XVIII.—*Incidence of Polypi in Carcinoma of the Colon.*

(12,800 autopsies at all ages.)

Period.	Cases of carcinoma coli.	Associated with polypi.	Incidence (per cent.).
1910–21	200	6	3 0
1922–28	191	17	8·9
1929–31 (in part) ..	79	21	26·6

A study of the Leeds autopsy records for the past 21⅓ years, from the point of view of the incidence of intestinal polypi, has been very illuminating. They have been divided into three periods: (1) 1910–1921 inclusive, the pre-war, war, and immediately post-war period; (2) 1922–1928 inclusive; and (3) from the beginning of 1929 to date. The reason for the separation of the third group is that during this period a much more detailed study of the large intestine has been in progress, practically all adults coming to autopsy having the gut closely scrutinised. Some of the results of this inquiry are shown in Tables XVII. and XVIII.

It is clear from these tables that only the records of the last two years and four months are of any value for the investigation of this problem, and it seems likely that even they fall short of the truth. For Dukes (1925–26) in a very thorough investigation of

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The Croonian Lectures delivered before the Royal College hysicians of London on June 4th, 9th, and 11th, 1931. ures I. and II. appeared in THE LANCET of Sept. 12th 19th respectively.

33 consecutive cases of carcinoma of the rectum and sigmoid at St. Mark's Hospital, found adenomata, some at a very early stage, in no fewer than 25—i.e., 75 per cent. In my series the data for the stomach are probably more uniformly reliable, and so in Table XIX., whereas the figures for the intestine relate only to the period since Jan. 1st, 1929, those for the stomach cover the whole period of 21⅓ years.

TABLE XIX.—*Incidence of Carcinoma in Cases with Gastric and Intestinal Polypi.*

—	Number of cases.	Number with cancer associated.	Incidence (per cent.).
Stomach (12,800 autopsies)—			
Single polypi	33	8	24
Two or more polypi	23	7	30
—	56	15	27
Incidence of cancer of stomach generally			2·5
Incidence in cases aged 30 and over..			4·0
Colon (1815 autopsies)—			
Single polypi	40	8	20
Two or more polypi	36	13	36
—	76	21	28
Incidence of cancer of colon generally			3·7
Incidence in cases aged 30 and over..			6·0

That gastric and intestinal polypi must both be regarded as precancerous lesions is obvious, but Table XX. shows that in the colon polypi bulk more largely in the picture.

TABLE XX.—*Frequency of Polypi as a Precancerous Lesion.*

—	Cases.	Associated with polypi.	Incidence (per cent.).
Carcinoma of stomach	322	15	4·7
,, colon	79	21	26·6

It is unusual to be able actually to demonstrate the onset of malignancy in a polypus. Miller, Eliason, and Wright (1930) did so in 8 out of 23 gastric polypi submitted to microscopic examination—35 per cent.; and Hullsiek (1930) in 6 out of 25 from the intestine—24 per cent. Malignancy may arise in more than one polyp, either at the same time or after an interval, and I have seen two cases in each of which two independent carcinomata of the colon coexisted with numerous simple polypi of the large gut. Cases of this kind have been reported by Abel (1929–30), Norbury (1930–31), and others. Dukes (1925–26) believes that with the development and progress of malignancy there is a tendency for the polypi to disappear.

HETEROTOPIC TUMOURS.

The occurrence of heterotopic nodules of pancreatic tissue in the walls of the stomach, duodenum, and small intestine, and in Meckel's diverticulum, is by no means infrequent. The closely related and similarly distributed lesion, adenomyoma (Stewart and Taylor, 1925), in which nodules of glandular tissue of mingled pancreatic, brunnerian, and duct type are interspersed with bundles of unstriped muscle, is less common, though still far from rare. There is no evidence that either of these lesions is particularly liable to malignant metamorphosis (Taylor 1927, Stewart 1929).

Lesions due to Animal Parasites.

For some years the idea has been gaining gro that there is an association between certain ani parasites and various forms of cancer of the alim tary tract. In a few instances the evidence for association is conclusive, in others it is merely s gestive. In man the examples so far recorded bel to the later category. With one or two unimport exceptions, the parasites incriminated belong to phylum vermes, classes nemathelminthes and pla helminthes, orders nematoda, cestoda and tremato that is to say, various round worms, tapeworm especially in the larval stage of their developmen and flukes. The exact nature of the relations between the parasite and a neoplastic type of respo on the part of the host is still obscure, even wl the association is beyond dispute, and it will be to proceed warily in attempting to generalise fr particular instances. Usually a chronic inflammat or granulomatous lesion is the starting-point, an followed either by a benign type of epithelial plasia, passing insensibly into epithelial maligna or by sarcomatous metamorphosis of the conne tissue barrier which surrounds the parasite.

COCCIDIOSIS.

Little need be said under this head. In the rab both wild and domesticated, invasion of the ducts by the protozoan parasite *coccidium ovifo* (*Eimeria stiedae*, Lindemann) is a common event. leads to an extensive and prolific papillomatous o growth of the bile-duct epithelium, which, howe never assumes invasive properties, although it interesting to note that Hake, who in 1839 was first to describe it, believed that the lesion cancerous. In man a few cases of invasion of liver by a similar parasite have been reported. Th have been critically reviewed by Dobell (1918– who is prepared to accept only three as real c of human coccidiosis. There was no associ malignancy.

SPIROPTERA CANCER.

The work of Fibiger, of Copenhagen (1913, 1 1920, 1921, 1923), on spiroptera cancer of the stom and tongue provides one of the most fascina chapters in the history of cancer research. whole of this truly epoch-making work arose ou the casual finding at autopsy of large papilloma growths in the stomachs of three rats (from Dor which had previously been injected with tube bacilli.

The tumours were squamous in type, having origin in the fundus, and there could be little doubt histologi that they were malignant. On further search the tum were found to harbour a tiny nematode and its eggs, and question arose whether or not this association was accide Fibiger thereupon examined a very large series of Da rats, but failed to find either tumours or this parti parasite. It had previously been shown by Galeb (that the cockroach *Periplaneta orientalis* was the i mediate host of a filaria which passed part of its life- in the stomach of the rat, and a number of wild rats this cockroach in their stomachs were examined, negative results. Feeding experiments were also nega Rats from a sugar refinery where the cockroaches w of the species *Periplaneta americana* were then exa some immediately they were caught, others after they had been kept until they died; 40 out of 61 were found to harbour the nematode in question, and in 18 of these the stomach was the seat of hyperplastic and neoplastic change. Several well-controlled series of feeding experiments followed and afforded complete proof of the causative relationship between parasite and new growth, the first authentic instance of experimentally induced cancer.

At the same time the exact life-cycle of the nematode *Spiroptera neoplastica* (*Gongylonema neoplasticum*), w worked out. The adult worm inhabits the squa epithelium of the cardiac portion of the stomach, to and less frequently œsophagus of the rat. The eggs, passed per anum, are eaten by the cockroaches, and in them develop into free embryos which migrate to the striped muscles of the prothorax and extremities, and there become encysted. When infected cockroaches are eaten by the rat, the embryos are set free and penetrate into the wall of the stomach where they attain sexual maturity in about two months.

The parasite lies in the thickness of the epithelium, and the changes induced vary with the number present. If there are only a few, simple squamous epithelial thickening and slight inflammatory changes result; if many, enormous polypoidal growths project into the cavity. The proliferating epithelium also extends deeply into the wall of the stomach, in advanced cases penetrating even the muscular coat, while notable inflammatory and proliferative changes are seen in the stroma. True tumours appear in from six weeks to three months from the time of infection.

The incidence of carcinoma in animals which survive for six weeks or longer is high, fully 50 per cent., and the remainder invariably show the earlier inflammatory and benign neoplastic changes. Tiny metastatic deposits in the lungs were present in six out of 33 rats in which these organs were examined in serial section. One showed also a deposit visible to the naked eye in a retroperitoneal lymph gland. The metastases never contained worms, a fact of prime importance. Similar lesions were induced, but with greater difficulty in other rats (*M. rattus* and *M. decumanus*) and in white mice. Occasionally in the latter the epithelial hyperplasia and downward infiltration were not limited to the cardiac portion, but involved also the neighbouring pyloric part, where both adenopapillomata and epithelial downgrowths were seen.

In the tongue, buccal mucosa and œsophagus, local invasion by the worm was followed by the same inflammatory phenomena and benign epithelial hyperplasia. In seven rats a chronic desquamative glossitis was followed by the development of true carcinoma, which persisted and progressed even after the glossitis had been recovered from. The final proof that the lesion induced was truly cancerous was afforded by the result of grafting experiments. Fibiger, using a peritoneal metastasis from a mouse, was able to continue the grafts over four generations during one year, the transplants being free from both worms and eggs.

What is the relation between the worm and the cancer? Borrel (1906) has stated his belief that the parasite acts merely as a vector of some as yet undiscovered carcinogenic virus. Fibiger has pointed out, however, that the severity of the lesion during the first phase of infection is in direct accordance with the number of worms present. This is explainable more naturally as a toxic effect of the worms than as the result of an infection passively conveyed by them. Once the autonomous growth has been started it continues independently of the infestation, behaving in all respects like malignant disease in man.

Beatti (1922–23) has reported three cases and Bonne (1926) one case of carcinoma of the stomach in rats (*M. norvegicus*) associated with another nematode parasite *Hepaticola hepatica*. In two of Beatti's cases, sarcoma, papilloma, and carcinoma coexisted in the same stomach. Metastasis to liver and lymph glands in two cases demonstrated completely the malignancy of the epithelial tumours. Vogel (1929) has succeeded in inducing squamous carcinoma in the stomach of two out of four black and white rats, by feeding them with the ripe eggs of *Hepaticola gastrica*. He thinks that the parasite recovered by Beatti was also *H. gastrica*. Of interest in relation to the specificity of these carcinogenic agents is the observation of Eiken (1920), who discovered a cysticercus sarcoma of the liver and a spiroptera carcinoma of the stomach existing side by side in the same rat.

Have the observations and experiments of Fibiger and his associates any direct application to cancer in man? The answer is, very little. According to Sambon (1926) gongylonema has been observed as a human parasite in only five or possibly six cases, and Ewing (1928) states that he rather frequently finds trichinæ in cancerous tongues. I have had no personal experience of this association. Isolated cases in the human subject where trichinal infestation and carcinoma have coexisted have been reported by Timm (1864), v. Linstow (1868), Babes (1906), Babler (1908), and others, but statistical proof of any association between them is lacking.

CYSTICERCUS SARCOMA OF THE LIVER.

In 1906, Borrel reported the occurrence of sarcoma of the liver in a rat infested with *Cysticercus fasciolaris*, the larval stage of *Tænia crassicollis*, a tapeworm of the cat. The cyst, which contained a worm 20 cm. long, lay within the tumour, the malignant nature of which was proved by successful passage in series through three generations.

Further examples of the naturally occurring disease have since been reported by a number of observers. McCoy (1909), who examined 100,000 American wild rats *post mortem*, found 22 with primary tumours of the liver, 13 of which harboured the cysticercus. Bridré and Conseil (1909, 1910) had 10 instances of cysticercus sarcoma in 7770 North African wild rats, of which 2174 were infected with the parasite; Woolley and Wherry (1911–12), 3 in 23,000 American wild rats; and Bullock and Rohdenburg (1917), 3 in 4300 laboratory rats.

In recent years Bullock and Curtis (1920–21, 1924, 1925, 1926, 1928) have carried out extensive experimental studies of this interesting tumour. They found that rats could readily be infected with the cysticercus by feeding them on cat fæces containing the eggs of *Tænia crassicollis*, and that in from 20 to 50 per cent. of the infected animals sarcomatous tumours subsequently developed around the parasitic cysts in the liver. The growths originated from the reactive wall of mesoblastic tissue formed around the parasite, and there were all gradations from reactive proliferation through benign neoplasia to frank malignancy with metastasis. As a rule, sarcoma developed in relation to one cyst only, but in a number of instances there were tumours in the walls of two or more.

It is worthy of note that amongst 2100 rats with cysticercus tumours of the liver there was no instance of a straightforward carcinoma (Bullock and Curtis, 1928).

HYDATID DISEASE AND CANCER OF THE LIVER.

The only worm which passes the larval stage of its existence with any frequency in the human subject is the *Tænia ecchinococcus*. Even in this country it is met with not infrequently, in Leeds 32 times in 12,800 autopsies, or 0·25 per cent. Yet the association with carcinoma of the liver is extremely rare, and the occasional reported cases (Bamberg 1901, Dibbelt 1903, Necker 1905, Löhlein 1907, and Ziegler (three cases) 1927), may well be accidental. Fabris (1930) reports a case which he regards as a primary mesothelioma arising in peritoneum stimulated to proliferative activity by a subjacent hydatid of the liver.

URINARY SCHISTOSOMIASIS.

Of the three species of schistosoma which infest man on a large scale, one, *S. hæmatobium*, gives rise mainly to lesions of the urinary tract, the others, *S. mansoni* and *S. japonicum*, mainly to lesions of the rectum and colon. Pathological changes in the liver are produced by all three, but are more notable in mansoni and japonicum infections.

In the urinary tract an intimate association between schistosomiasis and carcinoma of the bladder has been shown to exist, at least in Egypt. The terminal-spined eggs of *S. hæmatobium*, in their passage from the radicals of the vesical veins into and through the wall of the bladder, set up a cystitis, which, in the absence of treatment, slowly progresses from a catarrhal to a granulomatous stage, and finally develops into true tumour formation.

The first report of carcinoma of the bladder in a patient infected with bilharzia would appear to date from 1888. On May 15th of that year, at the

33 consecutive cases of carcinoma of the rectum and sigmoid at St. Mark's Hospital, found adenomata, some at a very early stage, in no fewer than 25—i.e., 75 per cent. In my series the data for the stomach are probably more uniformly reliable, and so in Table XIX., whereas the figures for the intestine relate only to the period since Jan. 1st, 1929, those for the stomach cover the whole period of 21½ years.

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Two or more polypi	23	7	30
—	56	15	27
Incidence of cancer of stomach generally ..	[illegible]	[illegible]	[illegible]
Incidence in cases aged 30 and over.. ..	[illegible]	[illegible]	[illegible]
Colon (1815 autopsies)—			
Single polypi	[illegible]	[illegible]	[illegible]
Two or more polypi	[illegible]	[illegible]	[illegible]
—	[illegible]	[illegible]	[illegible]
Incidence of c	[illegible]	[illegible]	[illegible]
Incidence in	[illegible]	[illegible]	[illegible]

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97), who examined one case, state their
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cause of the cancer.

Kartulis (1898) reported nine instances of primary carcinoma of the bladder, and one of sarcoma in 300 cases of bilharziosis studied by him. Goebel (1905), from 1890 to 1901, at the Deaconess Hospital, Alexandria, found 89 cases of cancer of the bladder amongst 1684 patients with schistosomiasis (5·28 per cent.), and at the Greek Hospital 22 cases of bladder cancer in 113 cases of cancer of various organs (19·5 per cent.). In England and Wales (1910–12) the incidence of cancer of the bladder and urethra was only 3·09 per cent. of cancer in males (Young and Russell, 1926), while in the years 1924 to 1929 inclusive the rate for bladder cancer alone was 2·96 to 3·12 per cent. Ferguson (1911–12), in Cairo, encountered 39 cases—33 of carcinoma and 6 of sarcoma—in the course of 600 consecutive autopsies in males of 5 years of age and upwards. At least 40 per cent. of the 600 were infested with bilharzia, including 29 the cases of bladder cancer. Dolbey and Mooro (1924) 671 cases of malignant disease seen in four years Kasr-el-Ainy Hospital. Among them were 51 cases of the bladder—7·6 per cent. Confirmatory evidence d by Hoffmann (1930). Amongst 991 cases of er" admitted to Egyptian public hospitals during –28 there were 186 cases of bladder cancer (18·8 per cent.) He compares this figure with the incidence in America in 1926—3·2 per cent. of all deaths from cancer.

Brumpt (1930) points out that the evidence for the association of schistosomiasis with vesical cancer comes only from Egypt, though not only from Egyptians, since Arabs living in Egypt are equally affected. This he attributes, probably rightly, to lack of careful observation in other bilharzia-infested countries.

INTESTINAL SCHISTOSOMIASIS.

A very different picture is presented by the intestinal forms of schistosomiasis. Here the lesions of rectum and colon stop short at the stages of granulomatosis and polypoid adenomata. It is not that there is any lack of irritation. The mucosa and submucosa of the large intestine, especially the sigmoid and rectum, become the seat of enormous accumulations of lateral-spined eggs, and a chronic inflammatory lesion is set up characterised in its later stages by the formation of localised or widespread adenopapillomata often of large size. "These do not appear to present any tendency to malignant development" (Dolbey and Mooro).

Lesions due to Animal Parasites.

For some years the idea has been gaining gro that there is an association between certain parasites and various forms of cancer of the alin tary tract. In a few instances the evidence for association is conclusive, in others it is merely s gestive. In man the examples so far recorded bel to the latter category. With one or two unimport exceptions, the parasites incriminated belong to phylum vermes, classes nemathelminthes and helminthes, orders nematoda, cestoda and tremato that is to say, various round worms, tape especially in the larval stage of their developmen and flukes. The exact nature of the relation
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the associat Madden (1907, 1919), who had an extensive
to experience in Egypt, says that rarely bilharzial
eration around the anus or on the glans penis may end in epithelioma. These are usually cases of long standing, with multiple sinuses or fistulæ and much scarring.

HEPATIC SCHISTOSOMIASIS.

The connexion between the three chief species of schistosoma and certain forms of cirrhosis of liver well established. So far as Western countries a concerned, Symmers (1903–04) in Egypt was the first t draw attention to a peculiar form of periport fibrosis associated with the presence of bilharzia ov To the naked eye "the cut surface of the liver look as if a number of white clay-pipe stems had bee thrust at various angles through the organ." Th eggs and egg shells present were those of *S. mansoni*. Long before this, however, Japanese observers had described the association of cirrhosis of the liver with the presence of a special parasite's eggs, although it was not until 1904 that Katsurada definitely established the causative agent as a new species of schistosoma (*S. japonicum*) (Faust and Meleney, 1924, *lit.*

The cirrhotic lesion is by no means uniform in characte Stitt (1929), for example, speaks of "interlobular," an Day (1924) of "multilobular" cirrhosis, and there considerable doubt as to how closely these resemble t ordinary types of the disease. Risquez (1919), who invest gated the liver in 42 cases of *S. mansoni* infection at t Caracas Medical School, did not once observe the classic picture of the cirrhosis of Laennec. In 100 autopsies o Chinese, Oppenheim (1925) encountered 11 cases of schist somiasis japonica. The liver was affected in all, bei enlarged in some and small in others, with eggs often enormous quantities. In one case a hobnailed liv presented appearances indistinguishable from those ordinary atrophic cirrhosis. Day (1924), in Egypt, conclud that there are two types of cirrhosis, depending on t number and rate of deposition of ova. If, as is more usu the numbers are small and deposited over a considera period, the diffuse form of cirrhosis (multilobular) is set u if very numerous they accumulate round the portal vesse producing dense periportal (pipe-stem) cirrhosis.

There is also some difference of opinion as to how far the cirrhosis is due to the eggs and how far to toxins elaborated by the worm. Phalen and Nichols (1908) in a case of schistosomiasis japonica found the liver destruction and fibrosis far more than could be accounted for by the number of ova present, and apparently incline to the view that a toxin plays some part. Lambert (1928) regards the mere presence of the eggs of *S. mansoni* over a long period as sufficient explanation, and Fischer (1919) and Stitt (1929) take a similar view with regard to *S. japonicum* and *S. hæmatobium* respectively.

Fairley (1919–20), in his experimental work on monkeys finds that in most of the organs and tissues where ov lodge there is a definite relationship between the productio of macroscopic lesions and the quantitative distribution o the eggs. The possible exceptions are the lungs and liver where toxins as well as ova are being filtered out. In view of the frequency with which liver changes were encounter and the monkey, Ferguson and Fairley reinvestigated a quantity of human material from this point of view. They contend that the human liver is much more constantly involved than had previously been supposed, and the fact that the changes are out of all proportion to the number of eggs present leads them to conclude that here also the generalised cirrhosis is the result of toxic action. These observations in man have been confirmed by Dew (1923).

It is when one endeavours to associate these changes with the development of primary carcinoma in the liver that the sequence of events breaks down. As already shown, there is a definite association between ordinary multilobular cirrhosis and primary hepatic cancer. *Is there any evidence of a like* association in bilharzial cirrhosis? The meagre data available are of two kinds:

(1) Direct evidence of the occurrence of primary cancer of the liver in cases of schistosomiasis; and

(2) Evidence of a high incidence-rate of hepatic cancer in districts where bilharzial infestation is prevalent. So far as the first is concerned, for the most part only a few isolated cases have been reported. In the Far East, Kusama (1907), Yamagiwa (1911), and others have noted the association of the two diseases, and Mouchet and Fronville (1918) have reported a case from the Belgian Congo. Mouchet and Gerard (1919), however, in reporting five additional cases of primary hepatic cancer, do not make any mention of schistosomiasis.

Harvey Pirie (1921–22) has presented the strongest evidence so far available. In 36 cases of primary carcinoma of the liver examined by him in the South African Institute for Medical Research, 31 out of 33 in which the necessary information was available showed cirrhosis of the liver. Actual proof of the presence of schistosomiasis was established in ten, five of which occurred in the last seven cases, after attention had been directed to the point. Pirie emphasises the fact that in 24 of the 26 negative cases no information as to the state of the bladder was available. These findings are suggestive though by no means conclusive, and Dr. Pirie informs me (1930) that his own subsequent experience has failed to substantiate the views put forward tentatively in this paper.

So far as the incidence of primary cancer of the liver in bilharzia-infested countries is concerned, there is insufficient evidence on which to base conclusions. *MacVicar (1925) attributes the high frequency* of liver cancer in South Africa to schistosome infection, but his figures are inadequate. In Egypt the evidence so far as it goes is against any association.

DISTOMIASIS AND BILIARY CARCINOMA.

Of the various species of liver-fluke which have been encountered in man two, *Opisthorchis felineus* and *Clonorchis sinensis*, have had a definitely carcinogenic rôle assigned to them by many observers. In general, the presence of flukes in the biliary passages gives rise to changes which have been classified by Brumpt (1927) as due to (1) destructive, (2) mechanical, (3) irritative, and (4) toxic action.

The changes induced in the walls of the bile ducts are of a chronic inflammatory and proliferative nature, the extent and severity of which are directly dependent on the heaviness of the infestation. The large and medium-sized ducts become much dilated and contain not only the parasite but also its eggs, and varying numbers of leucocytes and desquamated epithelial cells. The number of flukes in a severely infested case may be enormous, running into thousands. The inflammatory changes consist of a slowly progressive fibrosis of the outer walls of the ducts, with much lymphocytic and eosinophilic infiltration. Extension of the fibrosis into the surrounding paranchyma is described (Ruditzky, 1928), but is limited in extent and does not give rise to a true portal cirrhosis. The epithelial lining may be destroyed, or it may proliferate actively, growing into the dilated lumen in the form of adenopapillomatous masses often visible to the naked eye. Active proliferation also takes place in the mucous glands of the larger ducts, so that the channel comes to be lined by an adenomatous layer of varying thickness. Ordinarily these proliferative changes are confined within the densely sclerotic zone already mentioned, but there is evidence to show that occasionally an infiltrative malignant neoplastic change may be initiated. Full statistical and experimental proof is lacking, but the observations already made are at least suggestive.

The geographical distribution of the flukes concerned is important. *Opisthorchis felineus*, first discovered as a human parasite by Winogradoff (1892) in Siberia, is now known to occur also in East Prussia (Askanazy, 1900), Russia (Ruditzky, 1928), and other European countries, and occasionally in India, China, and Indo-China (Faust, 1930). *Clonorchis sinensis* occurs endemically in China (except the North West), Korea, and Japan. The chief natural reservoirs of both parasites are the dog and cat, and both are acquired by man by the ingestion of certain fish, one of the intermediate hosts, in a raw or insufficiently cooked state (*Olpp 1928, Hoogland 1929*, Faust 1930). Only scanty figures are available of the incidence of infestation in the populations at risk.

Romanoff (1907) saw in the post-mortem room at Tomsk 106 cases of distomiasis in 14 years. Two *had carcinoma* of the head of the pancreas. According to Winogradoff, the incidence of *Opisthorchis* in Tomsk was 0·15 per cent. Scriabin and Schulz (1928) state that in all only 149 cases of opisthorchis infestation have been reported in the U.S.S.R., and only 43 in other countries. In Japan, the most heavily infested province is Okayama, where Katsurada *(1900) found from 58 to 67 per cent. of the inhabitants* infected with *Clonorchis sinensis*.

Statistics for the frequency of carcinoma of the liver and bile passages in the infested and non-infested populations respectively can hardly be said to exist. The only figures which I have found are those of Oldt (1927) from Canton. In 287 patients infested with *clonorchis* there were three with *(? clinical) cancer of the liver (1·045 per cent.)*, as compared with five cases amongst 1461 patients without *clonorchis* (0·312 per cent.), a difference which is not statistically significant. The incidence of primary carcinoma of the liver appears to vary greatly in different parts of China, and it has been suggested, although statistical evidence is lacking, that the areas of high incidence correspond roughly with those of *clonorchis* infestation (Maxwell, 1929).

The literature of this subject consists almost wholly of isolated case-reports of carcinoma of the liver, larger bile-ducts, or pancreas occurring in persons infected with one or other of the flukes in *question*.

Cases associated with *Opisthorchis felineus* have been reported by Askanazy (1900, 1904, 1909), Romanoff (1907), Rindfleisch (1910), Ssavinych (1927), and Ruditzky (1928); and with *Clonorchis sinensis* by Katsurada (1900), Yamagiwa (1908), Fuzii (1912), Watanabe (1912), Tsukioka (1912), Watson-Wemyss (1919), and Bentham (1920) (the same case), Porter and Pirie (1921–22), Oldt (1927), Nauck and Liang (1928), and Kabeshima (1927).

Hoogland (1929) has produced important evidence in support of the view that distomiasis and carcinoma of the biliary tract are ætiologically related. In *Holland cats are not infrequently* fluke-infested, presumably because they are fed on uncooked fish. In four such cases he found the distomiasis associated with carcinoma of bile-duct origin, and in a fifth case with primary cancer of the gall-bladder. One must conclude therefore that while complete proof is lacking, sufficient evidence is available to establish a strong *a priori* case for a relationship between the two conditions, and we may reasonably regard as a probable precancerous lesion the benign proliferative changes in the bile passages which result from *the presence in* large numbers *of these parasitic* flukes.

Summary and Conclusions.

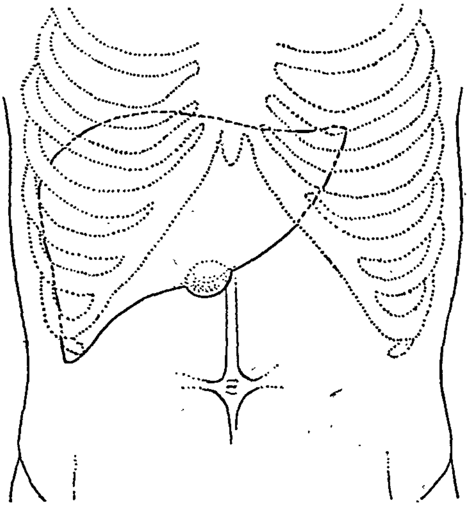
It is clear from what has been said that the precancerous conditions of the alimentary tract are both numerous and varied, though not all of equal importance. In the mouth, leucoplakia of the open ether anæsthesia. The tumour proved to be an isolated unilocular cyst of the left lobe of the liver. No adhesions to other structures were found. The gall-bladder was situated in its normal position, did not appear to be pathological, and contained no stones. The cyst appeared to extend rather deeply into the substance of the liver. The interval between the cyst and liver substance was sought for, incised with a knife, and, by gentle gauze dissection, the cyst was gradually shelled out of the left lobe of the liver. Bleeding was not excessive, and a large cigarette drain was placed upon the raw surface of the inferior aspect of the liver. Two interrupted catgut sutures were used to approximate the edges of the liver over the drainage-tube. The abdomen was then closed. Convalescence was normal; the drainage-tube was shortened on the second day and removed on the fourth; the stitches were removed on the ninth day. The patient was discharged to Chatham three weeks after the operation.

The cyst was about the size of a large orange, and contained 12 ounces of sterile, slightly blood-stained fluid containing some cholesterol crystals. No scolices or hooklets were seen. The lining membrane of the cyst was quite smooth. A portion of the cyst wall was sent to King's College Hospital, to the late Dr. W. d'E. Emery, who reported that it was made up of connective tissue in which a few bile-ducts could be seen; he considered that the cyst had originated primarily in a dilated bile-duct.

In 1925 the man was pensioned from the Navy, and wrote to one of us (C. P. G. W.) saying that he was sailing for Canada, was in the best of health, and had never had any indigestion since his operation ten years previously.

CASE 2.—A woman, aged 51, was admitted to King's College Hospital on March 11th, 1931, complaining of a "lump in her stomach" and abdominal pain. For about a year previously she had noticed a round lump in her abdomen in the subcostal angle. It caused her no discomfort, and she paid no attention to it. Three months before coming she had had a sudden attack of abdominal pain accompanied by vomiting. This attack had been of short duration, and had been succeeded at irregular intervals by attacks of dull aching pain in the epigastrium, made worse by walking. The pain had no relation to food. Occasionally there were shooting pains in the back. She had suffered for over a year from vague dyspeptic symptoms, such as flatulence, loss of appetite, and occasional nausea. She had never been jaundiced, nor was there any loss of weight.

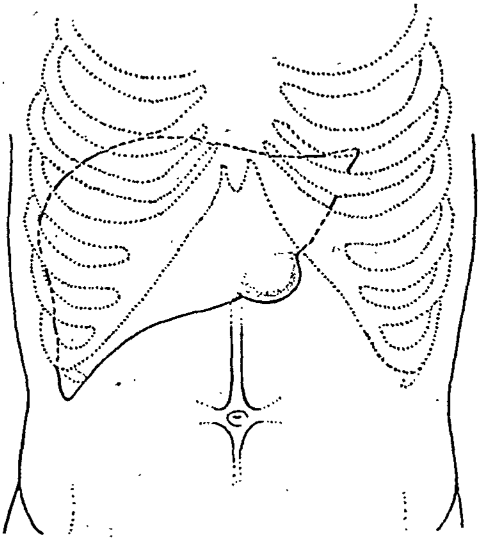
FIG. 1.



CASE 1.—Diagram showing the size of the cyst in relation to the liver.

Examination.—On admission the patient looked healthy, and felt quite well. Her temperature and pulse-rate were normal. Her tongue was slightly furred, and some of her teeth were carious. A firm spherical lump could be felt in the epigastrium slightly to the left of the mid-line and lying deeply to the rectus abdominis muscle (Fig. 2). I was about the size and shape of a tangerine orange, had smooth surface, and gave a dull note on percussion. I moved vertically on respiration, and could be displace easily from side to side. When pushed under the rig costal margin, it could only be dislodged again with dif culty; this movement caused pain. Its lower rounde margins were well defined, but its upper margins faded away It was thought to be attached to the liver. No abnormalit was found in her other systems. The van den Bergh tes gave a delayed direct reaction; quantitative 0·75 unit.

FIG. 2.



CASE 2.—Diagram showing the position of the cyst.

Operation.—On March 18th a laparotomy was performe (C. P. G. W.) through a right upper paramedian incisio under open ether anæsthesia. A large thin-walled cyst wa found projecting from below the anterior border of the le lobe of the liver (Fig. 3). It lay about 2 inches medi to the fundus of the gall-bladder, immediately to the le of the ligamentum teres. It was bluish-black in colou and was moderately distended with fluid. By caref dissection with gauze, aided by a few touches with th knife, the cyst was fairly easily shelled out from the liv and preserved intact (Fig. 4). The operation caused on a slight oozing of blood. The gall-bladder was normal colour and appearance, and contained no stones. N other abnormality was discovered in the abdomen. Th raw surfaces of the liver were approximated with a fe catgut sutures, and a drainage-tube left in situ.

From the cyst, which weighed 4 ounces, 80 c.c of a yellowish-brown turbid fluid were withdraw by a cannula. No sugar or bile was present. Micro scopically, a few red blood corpuscles and a fa amount of granular debris were seen. The flu contained no cholesterin crystals, leucocytes, d parasites. No organisms could be found in dire smears, and all the cultures were sterile. Section the wall of the cyst showed that it was composed fibrous tissue, lined by a single layer of flatten epithelial cells. A few capillaries were seen in th fibrous tissue.

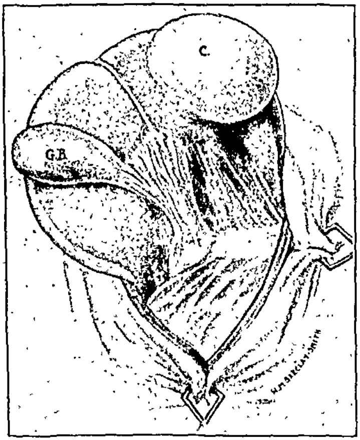
The patient made an excellent recovery, and was discharged 14 days later, free from symptoms.

CASE 3.—A woman, aged 54, was admitted to King's College Hospital under the care of Dr. C. E. Newman on Nov. 12th, 1930, complaining of indigestion. She had suffered from indigestion and headache for many years. Four months previously she had first noticed a lump in the upper part of the abdomen.

She had observed no change in its size, but thought it dropped when she was standing, and moved upwards when she lay down. A few days before admission she had had a particularly severe attack of headache and abdominal pain, accompanied by nausea and flatulence, but no vomiting. She described the pain as a dull ache. It was not localised, but seemed to spread across the epigastrium. It was worse on standing, and a belt which she was in the habit of wearing tended to increase her discomfort. She suffered from habitual constipation. She had suffered from a cyst of the neck, which was removed at another hospital 34 years before, and the nature of which is unknown. Nothing else of relevance in her past or family history could be elicited.

Examination.—The patient was normal in size and weight. She was not jaundiced, and looked fairly well. A small lump situated in the pyloric plane just to the right of the mid-line was noticeable. It was more apparent on deep inspiration, and could be felt lying fairly close to the anterior abdominal wall. It was about the size of a golf-ball, with a smooth surface and rounded margins, and was only slightly movable. It appeared to be fixed to the liver, which was enlarged to two finger-breadths below the ribs at the level of the ninth costal margin.

FIG. 3.

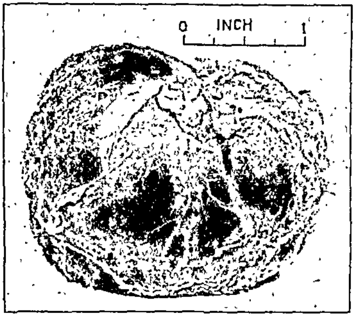


Drawing made at the time of the operation, showing the cyst on the inferior surface of the liver and its relation to the gall-bladder.

Nothing abnormal was found in the other systems. The Wassermann reaction was negative. The report of a barium meal was as follows: "Some ptosis of the stomach. The duodenal cap fills well and is not tender; in two films, the outer border of the cap is concave, possibly due to external pressure (Fig. 5)." A cholecystogram showed a ptosed gall-bladder; no gall-stones were seen. Red blood-cells numbered 4,060,000 and leucocytes 4000, and the hæmoglobin was 80 per cent.; no abnormal forms of cell were seen. A gastric residuum examination (Nov. 20th) gave a normal result, with the exception of a diminution of the normal amount of free hydrochloric acid. A provisional diagnosis of visceroptosis with adhesions was made. The nature of the lump was a matter of speculation. Laparotomy was decided upon.

Operation.—On Dec. 10th the abdomen was opened by a right upper paramedian incision under ether anæsthesia (C. P. G. W.). A small thin-walled cyst immediately came into view. It occupied the upper or hepatic end of the ligamentum teres, and appeared to be "sitting on top of" the right lobe of the liver at its medial margin, at the point where the ligamentum teres becomes anatomically continuous with the falciform ligament. It was not directly attached to the liver. In front it was adherent to the posterior sheath of the rectus muscle, from which it had to be separated. The cyst was easily removed intact. Some adhesions between the liver and the duodenum were divided. No further abnormality was detected in any of the viscera. The wound was closed without drainage.

FIG. 4.

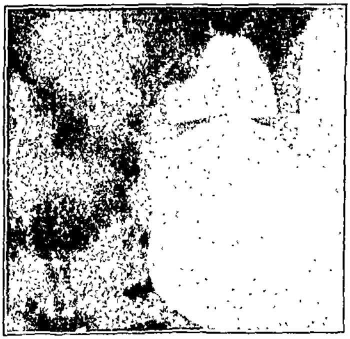


Specimen of cyst after removal.

Chemical analysis of the contents of the cyst showed that the fluid was alkaline to litmus, and contained a trace of albumin and of urea, but no sugar, pseudomucin, or bile. The wall was fibrous, containing some smooth muscle tissue, and had a definite endothelial lining. A little striated muscle tissue was found, but did not appear to be an integral part of the cyst wall.

The patient made an uninterrupted recovery, and was discharged free from symptoms 18 days later.

FIG. 5.



CASE 3.—Radiogram showing deformity of duodenal cap due to external pressure from the cyst.

Comment.

Cases 1 and 2 are examples of hepatic cysts which gave rise to symptoms, and were completely relieved by operation. Case 3 presented a similar clinical picture, although the cyst was apparently not of hepatic origin. It was likewise benefited by operation.

CLASSIFICATION OF NON-PARASITIC CYSTS OF THE LIVER.

In 1905, Bland-Sutton [4] divided these cysts broadly into two classes: general cystic disease and solitary cysts. In his detailed and exhaustive paper on the subject in 1913, Boyd [5] adheres to this classification, although both he and Sonntag [6] incline to the belief that general cystic disease and solitary cysts of the liver are manifestations of the same disease. A cyst is occasionally removed in the belief that it is solitary, but careful examination—either naked-eye or with the microscope—in small portions of excised liver-tissue reveals the presence of other cysts. Boyd pointed out that in general cystic disease many cysts varying greatly in size may be found in the liver associated with cystic disease of other organs, such as the kidneys, pancreas, spleen, brain, and lungs. On the other hand, the liver may be the only organ affected. According to Moschcowitz,[7] in a series of 85 recorded cases of general cystic disease, the liver alone was involved in ten. It is interesting to note that the association of cystic kidneys with cystic degeneration of the liver was first observed by Bristow [8] in 1856. It is generally held, however, that solitary cysts constitute a distinct pathological entity, and their greater clinical interest lies in the fact that they are usually amenable to surgical treatment while general cystic disease is not.

A more complete classification which embraces all types of non-parasitic cysts is suggested by Jones [9]: (1) Bile-duct retention cysts; (2) cystic degeneration of the liver with (usually) cystic kidneys; (3) teratomatous cysts; (4) lymphatic cysts; (5) cysts originating from blood-vessels; (6) ciliated epithelial cysts; (7) cystadenomata; (8) pseudo-cysts (degeneration cysts).

The first group appears to be the most common. Although it is possible that the two cases we have described belong to this group, nevertheless we consider that they may have had a different origin. The wall of the cyst of the bile-duct retention type is lined by epithelium of the same type as that lining bile-duct. It may be modified, however, size and degree of distension of the cyst, or by tory changes. Thus the single cyst seems derived in most cases from an aberrant bile- in which occlusion of the lumen has occurred as the result of faulty development, or by some intra-uterine or neoplastic process. According to Jones, the epithelium in the embryonic state is possibly of the secreting type, and the fluid secreted thereby becomes pent up, and subsequently causes distension of an imperfectly developed bile-channel. The theories which have been put forward to explain the origin of general cystic disease, as affecting the liver, have been adequately discussed by Boyd and other writers. The exact mode of origin of this condition, as well as that of solitary cysts of the liver, still remains open to speculation. Teratomatous, lymphatic, and cysts of blood-vessel origin—e.g., hæmangiomatous cysts, an interesting example of which was reported by Lowenburg [10]—require no discussion here.

Ciliated epithelial cysts are excessively rare, but Alexander [11] suggests that they may give a clue to origin of certain cysts of which the pathology is He states that the ciliated epithelium sts is identical with that which is found and with that of cysts connected and food passages which are tive fore-gut. The presence eem to be a strong argument pmental origin of the cysts, the epithelium in some cases undergoing a retrogression in type and becoming cubical or flattened.

The remaining two groups, cystadenomata and pseudo-cysts, represent the cysts which have an acquired origin, in contradistinction to the groups previously mentioned, of which the origin is almost certainly congenital. The term "pseudo-cysts" includes those cases of carcinoma and sarcoma in which cystic degeneration has occurred, of softening of cirrhotic nodes, and of cysts due to hæmorrhage resulting from trauma. In this group it is probably correct to include a striking case of Stevens's,[13] described as a "large cystic tumour of the liver simulating an ovarian cyst." The patient was a woman, aged 52, whose only complaint was an enlargement of the abdomen. A tumour about the size of a 28 weeks' pregnancy was felt, and was thought to be a multilocular ovarian cyst. At the operation, the only connexions of the cystic tumour were with the left lobe of the liver and with the anterior surface of the omentum. The pelvic organs were normal. Microscopically the tumour was a spindle-celled sarcoma. Whether it had grown from the hepatic capsule or had acquired a secondary attachment to it could not be determined.

SUGGESTED MODE OF ORIGIN OF A CERTAIN TYPE OF HEPATIC CYST.

An ætiological factor which, as far as we are aware, has not been described is suggested by Case 3. This case is noteworthy on account of its apparent rarity, since we have succeeded in finding only one recorded instance of a cyst of the ligamentum teres hepatis. This was the case reported by Henderson,[14] which was operated on by W. J. Mayo. It was the only case of its kind that had been met with at the Mayo Clinic. Henderson could find no published reference to a similar condition. It is known that a large number of solitary non-parasitic cysts occur at the anterior border of the liver near the junction of the right and left lobes. In this area is found the round fibrous cord or ligamentum teres of the adult, representing the fœtal left umbilical vein. This structure normally becomes obliterated when the adult circulation is established, but it would seem reasonable to suppose that in a few cases, as in Case 3, the process of obliteration remained incomplete. A local failure of closure may thus account for the formation of a cyst, especially when it is recognised that endothelial cells are in certain circumstances capable of producing a secretion, and that cystic formation is notoriously common in the adult remnants of similar fœtal structures, such as the round ligaments of the uterus, and the funicular portion of the processus vaginalis.

The resemblance of this cyst of the ligamentum teres to the solitary non-parasitic unilocular cysts of Cases 1 and 2, and to similar cysts described by various authors, is very striking when one compares the naked-eye appearances, the histology of the cyst wall, and the character of the fluid contents. Some considerable variation, it is true, may be noted in this last respect, for the constituents may be readily altered by superadded pathological processes, but the presence of albumin and the absence of sugar and bile is almost constant. It is often extremely difficult, if not impossible, to determine the nature of the single layer of flattened cells lining the cyst wall. In some cases it is epithelial, in some it is endothelial, but in others, where the cell-layer has become disorganised by long-standing pressure changes, inflammation, or trauma before and after removal of the cyst, even an expert histologist will hesitate to hazard a definite opinion. We surmise that in many instances the lining layer has been incorrectly described as composed of epithelial rather than of endothelial cells. It is, however, in those cases of solitary thin-walled unilocular cysts where the cells of the lining layer are endothelial in type, that we suggest an origin from an abnormal ligamentum teres. Furthermore, if a cyst of the ligamentum teres should occur near the hepatic end it may easily acquire a connexion with the hepatic capsule, and subsequently obtain a "false" capsule composed of flattened-out liver tissue.

In Cases 1 and 2 the cysts were situated very close to the site which would be occupied by a cyst developing in the upper end of the ligamentum teres. In the former case it was immediately to the right, and in the latter case it was immediately to the left of the "insertion" of the ligamentum teres. Both cysts projected below the anterior border of the liver. Additional support is given to this idea of the origin of this type of cyst by the fact that they are so easily shelled out from the liver substance in which they are partly embedded. It seems likely that the line of demarcation, as represented by the fibrous wall of the cyst, would be less well defined if such cysts arose primarily from the liver, and that the process of extrusion would be much more difficult to accomplish. The outstanding features found at operation on the cysts under discussion were their mobility, their slender attachment to the liver, and the ease with which they were enucleated by gentle gauze dissection.

CLINICAL FEATURES AND DIAGNOSIS OF SOLITARY CYSTS.

Sex.—Females are affected far more commonly than males, the proportion being about 4 to 1. This preponderance of the condition in the female sex is in agreement with the fact that developmental defects are considered to be more common in that sex. Bland-Sutton,[15] however, in attributing certain cases to the effects of trauma, thought that the greater frequency in females was possibly associated with the pressure of corsets.

Age.—The average age of patients who have been operated upon is between 40 and 60. Several cases, however, have been recorded of operations performed upon infants (Stoesser, Shaw, and Elting [16]), and in patients over 70.

Size and situation.—The cysts vary considerably in size. Occasionally, they have been so enormous in the fœtus as to prevent normal delivery, as in the cases reported by Bagot,[17] and Cousins.[18] Cysts smaller than a walnut or an egg rarely require operative interference. They appear to arise from the right lobe of the liver more frequently than from the left in the proportion of 8 to 6 (Sonntag). This relative frequency may admit of a simple explanation, owing to the large size of the right lobe as compared with the left.

Symptoms and diagnosis.—The majority of cases give rise to no symptoms. This is shown by the number of cases found at autopsy, as in the series of Ackman and Rhea, who found ten cases in 6141 post-mortems in which "no symptoms referable to the liver, gall-bladder, or gastro-intestinal tract had been present during life." The symptoms which require surgical intervention for their relief arise from the mechanical effects of pressure due to the size and situation of the cyst, and to complications occurring in the cyst itself. Pressure upon some part of the gastro-intestinal tract may give rise to vague discomfort, sometimes amounting to pain, especially when there is gastric distension, nausea, flatulence, loss of appetite, headache, and vomiting. The bowel action may be irregular; constipation or diarrhœa is usually present, or they may alternate. Jaundice, usually slight and of an intermittent type, is occasionally present, and is due to obstruction of the extra-hepatic ducts. Pressure upon the costal vein may give rise to ascites. An abdominal swelling may be observed in some cases. This may occupy the epigastrium, to the right or left of the mid-line, or may spread over to the hypochondrium on either side, or even the whole abdominal cavity is occasionally involved. A characteristic feature, and one of diagnostic value, is the low tension of the cyst as compared with the tension of an echinococcus cyst (Kilvington[19]). The absence of a hydatid thrill is of no diagnostic value, as it is so rarely obtained by experimental observation.

The conditions which have been suspected before operation are varied in the extreme, and indicate the difficulty of a differential diagnosis. The list includes parasitic cysts and other cystic tumours of the liver and adjacent organs, such as the pancreas, kidney, and ovary; cystic dilatation of the common bile-duct; hydrops of the gall-bladder, tuberculous peritonitis, and solid tumours of the liver and kidney. An important observation regarding the differential diagnosis of a large liver or kidney tumour is made by Hoffman,[20] quoted by Stoesser. He pointed out that in large tumours of the liver the colon is pushed downwards and to the left, while in the case of a large tumour of the kidney, the colon lies in front of the swelling. This fact may be confirmed by X rays after colonic injection of air.

It should be emphasised that there are no constant clinical features of solitary non-parasitic cysts of the liver which enable a certain diagnosis to be made before operation. In the absence of a palpable swelling, a clinical picture suggesting cholecystitis, hepatitis, or chronic dyspepsia may be produced.

Certain complications arising in the cysts themselves may be mentioned. They are hæmorrhage (Kilvington), producing a sudden onset of acute symptoms or—in cases where the cyst is attached to the liver by a long pedicle—torsion and strangulation (Orr and Thurston).

TREATMENT.

When the nature of the attachment of the cyst to the liver permits, the choice of treatment is limited to complete excision. In some cases the cyst is so large or is so closely incorporated in the liver substance that total removal is impossible or dangerous. The surgeon must then be content with partial removal of the wall of the cyst, together with evacuation of the cyst contents by drainage or marsupialisation. In some cases where drainage has been used, suppuration and sinus-formation have ensued. Gauze-packing has been employed with success. Simple puncture is not to be recommended, as fatal peritonitis from subsequent suppuration may result. This complication occurred in two cases quoted by Jones. An original method of treating a large thick-walled cyst was adopted by Burghard in a patient who suffered from recurrent jaundice, reported by Everidge.[22] The cyst was anastomosed to the duodenum, with an entirely successful result.

Large cystic tumours in children must be treated with special care, for the rapid evacuation or removal of large cysts with consequent alteration in the intra-abdominal pressure has resulted in severe shock and death. This fatality appeared to be the direct result of sudden abdominal decompression, as occurred in the cases reported by Shaw and Alexander.

Summary.

(1) Two cases of unilocular solitary non-parasitic cysts of the liver, and a case of cyst of the ligamentum teres hepatis are recorded. (2) The ætiology of solitary non-parasitic cysts of the liver is discussed. (3) A mode of origin, not previously described, of a certain type of unilocular hepatic cysts is suggested. (4) The clinical features are discussed, and the conclusion is arrived at, that pre-operative diagnosis is impossible in most cases. (5) The condition gives rise to so few, if any, symptoms, that it usually remains unrecognised during life. (6) Symptoms which occur are due to the effects of pressure upon neighbouring viscera or to complications arising within the cysts themselves. (7) Surgical intervention is recommended for the relief of symptoms. The best results are obtained in simple, uncomplicated cases, by complete excision.

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OPERATIVE TREATMENT OF HYDROCELE.

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THE so-called idiopathic hydrocele of the tunica vaginalis is very common in Egypt. No less than five cases a day come to the Kasr-el-Aini surgical outpatient department, and 170 are operated on as in-patients every year. The vast majority of these cases are chronic and have had several previous tappings. The tunica is usually very thickened and sometimes very vascular. In fact, the tunica may be so thick that it is not possible to differentiate between hydro- and hæmato-cele by transillumination.

In spite of the prevalence of the disease and its comparative simplicity, the results of operative treatment have hitherto been far from ideal. The two operations of choice have been: (1) Eversion of the tunica with posterior anchoring sutures (Jaboulay). (2) Excision of the parietal layer of the tunica (Burgman).

Eversion.

The disadvantages of the method are:—

1. *A lump* of variable size, representing the turned-back tunica, invariably persists behind the testicle and, although quite harmless, is often a source of worry and discontent to a fastidious patient; in cases with a thickened tunica it adds appreciably to the size and weight of the scrotal contents.

2. *Recurrence.*—This is often due to faulty technique, but a certain number of recurrences occur in spite of all care and skill. A few are due to the anchoring sutures getting undone. In such cases the two turned-back flaps of the tunica simply refold themselves and heal in front of the testicle, thus reconstituting the anatomy of the part. I have operated on two such recurrent cases and, apart from the linear scar in the skin, it was impossible to notice during operation that the part had been previously operated upon. This slipping of the anchoring sutures may take place during or immediately after operation as a result of using too much force when pushing the testicle back into the scrotum, or using slippery catgut, which is apt to become more slippery still when soaking in hydrocele fluid. I have seen the anchoring reef knots undo themselves while I was watching, just as I was going to close the skin incision—a sight which reminded me very much of a slow-motion cinema. Although this accident is more or less avoidable, the sutures may give way a day or more later as a result of the tension produced by the pressure of the increasingly swollen spermatic cord and epididymis which lie between the two everted flaps of the tunica.

Another cause of recurrence after Jaboulay's operation is incomplete eversion of the tunica. This is usually the result of too small an incision in the tunica so that, although the two edges are turned back and sutured behind, one or more pouches are left above and below where fluid can collect and form localised hydroceles of different shapes and sizes (Fig. 1).

I have operated on a recurrent hydrocele after Jaboulay's operation and found that, although the anterior surface of the testicle was bare, the fluid was enclosed in a serous cavity surrounding the testicle like a filled tyre. There could be no doubt that this resulted from making a very small opening in the tunica and slipping the testicle through it. The lips of the wound then healed to the circumference of the testicle; hence the "tyre hydrocele" (Fig. 2).

Excision.

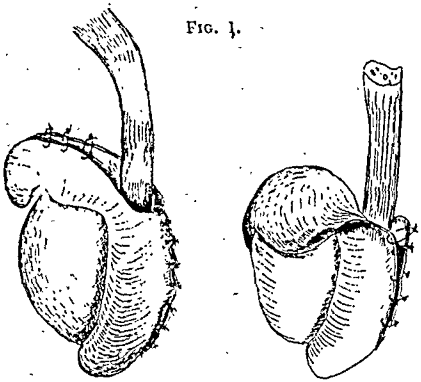
The chief objection to the excision operation has always been that a hæmatoma almost invariably follows where the tunica has been thick and vascular. Pain from the pressure is a distressing symptom. Such hæmatomata are rarely completely absorbed, so that the majority of cases are left with a hard fibrous mass, resulting from organisation of the clot, with or without a serous collection which may need aspiration, may burst through the cutaneous scar, or even suppurate.

Another objection to the excision operation is the variable amount of traumatic orchitis which follows the unavoidable manipulation of the testicle. Transient as this orchitis may be, there is no clue to the actual amount of permanent damage done to the testicle as a gland of internal as well as external secretion. No investigation has been possible to estimate the amount of atrophy of interstitial and spermatogenic cells or the amount of atresia of seminiferous tubules and vasa efferentia which follows a mere attack of transient traumatic orchitis.

The following two cases, however, suggest a probability that azoöspermia and sterility may follow a double hydrocele operation.

CASE 1.—A healthy man of 40 had been operated on for double hydrocele eight years previously. His semen was reported to contain no spermatozoa and no pus cells. His Wassermann reaction was negative and he had never had gonorrhœa or genital bilharziasis (thus excluding the three common causes of male sterility in Egypt).

FIG. 1.

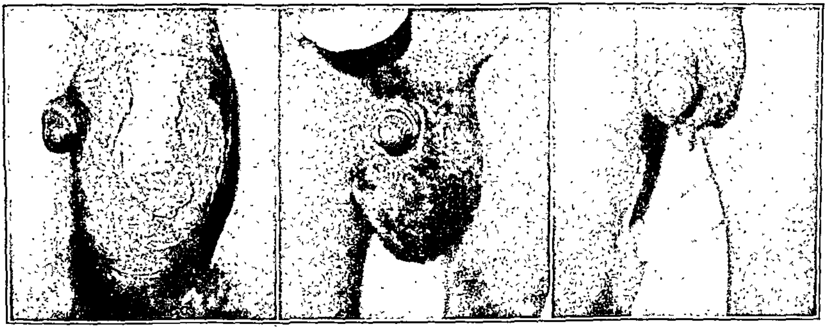


A. Complete eversion. B. Incomplete eversion.

CASE 2.—A healthy man of 62 had had two attacks of gonorrhœa, one when he was 20 and one when he was 25 years old. Neither attack lasted more than six weeks and on neither occasion had he any testicular complication. He noticed a double hydrocele when he was 35, was operated on when he was 40, and got married at the age of 42. He has had no children, and his semen was reported to contain no living spermatozoa on three occasions during the last 15 years.

Preventing or diminishing the hæmatoma and allaying the orchitis have been attempted by different operators at different epochs. Post-operative drainage, strapping, evaporating lotions, ice-bags, and other means have been tried, but they are generally ineffective, if not harmful.

FIG. 3.

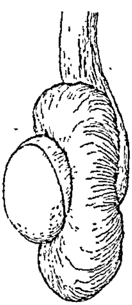


A. Before operation. B. Seven days later. C. Seven months later.

EXCISION OF THE PARIETAL TUNICA VAGINALIS.

To obviate these disappointments I have lately practised excision of the parietal layer of the tunica and cauterising the edges. The operation is simple in the extreme and is carried out on much the same lines as the clamp-and-cautery operation for piles. A scrotal incision is made and deepened until the tunica is opened and the fluid allowed to escape. The testicle is then pushed out and the tunica everted. It is unnecessary to peel off the different layers which envelop the testicle. Big clamps are applied on the parietal layer of the tunica in a circular manner as near the testicle as possible. Each clamp is then held in turn, the tunica is cut away with the scissors almost flush with the clamp, and the raw surface is seared with the blade of a Paquelin's thermocautery until it is nearly charred. Then the clamp is carefully removed. The next clamp is dealt with in the same way, and so on until the whole parietal tunica is removed. The testicle has to be protected by a wet sponge during the searing operation to avoid radiation of heat. It is then replaced into the scrotum and the skin incision closed with Michael's clip.

FIG. 2.



Recurrent hydrocele in tyre form.

I have done this operation on 20 patients, five of whom had double hydroceles, so that in all 25 hydroceles were operated on by this method. They all healed by first intention. Post-operative swelling and hæmatomata were almost negligible and the temperature charts showed no rise above 37·5° C. in all the cases. Every one of the 20 patients was discharged on the seventh day after the operation. The largest testicle was no more than twice the normal size when the patient left hospital and quite normal at the end of one month. Fig. 3 (A, B, and C) represents the largest in this series—a hydrocele of ten years' duration, containing 1550 c.cm. of fluid with a tunica 3 mm. thick.

The advantage of this operation over the other two is that handling of the testicle is reduced to a minimum, thus avoiding traumatic orchitis. Post-operative hæmatoma does not occur; the testicle looks and feels normal after operation and recurrence is impossible.

I am indebted to Drs. A. H. Hafez and M. Arafa for their help and to Dr. Boulgakov, who kindly drew the sketches for me.

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EPITHELIOMA OF THE ŒSOPHAGUS IN ASSOCIATION WITH ACHALASIA OF THE CARDIA.

BY GEOFFREY RAKE, M.B. LOND.,

ASSISTANT IN PATHOLOGY, THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH, NEW YORK.

ACHALASIA of the cardia is of such sporadic occurrence that only when an unusual situation arises will any one person have the opportunity to examine more than a few cases. Yet it is only when a sufficiently large series has been seen that a clear idea as to the course of the disease can be formed. It has so happened that I have been able to examine material from 15 fresh cases. The results of the examination of most of these, with a demonstration of a causal lesion in Auerbach's plexus, have been described in detail elsewhere.[1 2 3] It is the purpose of this paper to discuss certain complications which may appear secondary to the achalasia.

When the mucosal surface of the œsophagus is examined in cases of achalasia, changes are found which vary with the duration of the disease. The non-relaxation of the sphincter produces a stagnation of saliva and food within the dilated lumen, and this mixture forms a splendid pabulum for bacterial growth. An acute œsophagitis is the inevitable result and this condition, having no chance as a rule to heal, progresses slowly to a chronic stage.

In the acute stage, clinical observation shows t the mucosa is red, inflamed, and over-sensitive stimuli, so that a true spasm may be superimposed the achalasia. Microscopical examination at such a time reveals a thickened and œdematous submucosa with some cell infiltration. Later, small and shallow ulcers appear, extending through the squamous epithelium to the upper layer of the submucosa, and coalescing to a greater or lesser degree, so that the greater part of the mucous membrane may be lost and the submucosa laid bare. In this stage the submucosa is two or three times the normal thickness, with a marked increase in fibrous connective tissue, and there is a well-marked accumulation of cells—lymphocytes, monocytes, and plasma cells—both scattered and in small foci. Usually the ulceration remains shallow but it may proceed deeper into the wall and even break through into the pleura, producing a fatal empyema. Even where this does not result, the wall may be so weakened that careless manipulation of instruments within the lumen will cause a rupture.

In the majority of cases, examination of the gross specimen shows a more or less irregular upper limit to this ulceration, which corresponds to the height of the column of retained food. Often, however, small islands of epithelium, standing out in clear relief from the ulcerated surface, remain in this vicinity or lower down on the wall. If the irritation ceases, these epithelial islands will show active growth and an attempt will be made to heal over the entire ulcerated surface. Usually, however, the irritation is at best intermittent, the intermissions corresponding with periods of more active treatment, and they are followed by further accumulations of putrefying material and a recrudescence of the irritation. There results a condition which I have several times observed and which is described in the literature—namely, an irregular epithelial hyperplasia, with the production of small, wart-like nodules or definite papillomata. These at first are benign overgrowths of the same nature as those seen elsewhere in the intestinal tract, but as the irritation continues and an opportunity to heal is not presented, a further change may result—the formation of a malignant epithelioma.

Such a sequence of events is not unusual elsewhere in the body. Precisely the same picture is seen in ulcerative colitis, in which the epithelial islands remain or appear on the ulcerated surface and produce, in turn, papillomata and subsequently carcinomata.[4] The irritation of spontaneous or familial polyposis within the stomach or the large intestine will, in time, almost inevitably give rise to a malignant growth.[5]

In our own experience such a sequela in achalasia is of sufficient frequency to call for some attention. In the series of 13 cases examined up to the spring of 1930, two instances of epithelioma commencing in such epithelial overgrowths were recorded.[3] Since that time, through the courtesy of Dr. Francis Scrimger, of Montreal, and Dr. T. L. Hardy, of Birmingham, two further cases of the disease have been examined, both of which showed characteristic lesions in Auerbach's plexus. In the second case, that of Dr. Hardy, a large epithelioma was present, and had ruptured into the left bronchus, bringing about death. An examination of sections of this tumour showed extensive keratinisation and epithelial pearl formation, features which are unusual in œsophageal epitheliomata and which stress the marked irritation that must have been present.

Thus, in three out of 15 fatal cases, death has resulted from a malignant growth arising upon the ulcerated surface. Such cases are not infrequent in the literature, although they do not occur in as high a percentage as that of the present series. It is only by examination of a reasonably large number of cases that the importance of such sequelæ can be realised and it is in this way that the report of individual cases becomes of value.

The question arises as to possible prophylaxis against such developments. Undoubtedly, it is of primary importance that every step be taken from the outset to avoid damage of the œsophageal mucosa, for once the ulceration is at all extensive, the position of the clinician is much more difficult. As is shown so conclusively in cases of chronic colitis, no matter how careful may be the treatment, epithelial overgrowth with papilloma formation of the once ulcerated surface is often unavoidable, and from this stage to that of a malignant tumour is apparently but a small step. Thus everything possible should be done within the first period to relieve and prevent all irritation. For this purpose, the diet and régime advised by Hurst[6] seem to be most satisfactory. Mercury bougies should be passed often, to allow complete emptying of the dilated œsophageal sac. Even when the patient no longer feels any discomfort, it is advisable not to depart from a careful diet and régime, and to continue the use of the bougie at regular intervals until there is positively no more retention of food. In the rare cases which resist this more

(*Continued at foot of next page.*)

CLINICAL AND LABORATORY NOTES

ACUTE ANOXÆMIA IN AN ACCLIMATISED PERSON.

BY RAYMOND GREENE, B.M., B.CH. OXF.,
MEDICAL OFFICER TO THE BRITISH HIMALAYAN EXPEDITION, 1931.

IN view of the discussion in the Physiological Section of the British Association on the limits placed by altitude to physical exercise, the following case may be of interest.

X. Y., aged 31, had become fully acclimatised to work at altitudes of over 20,000 feet. During the preceding ten weeks he had spent six weeks above 15,000 feet and two weeks above 20,000 feet. He had climbed Kamet (25,447 feet) and several other high peaks and was capable of hard work at 20,000 feet and over without undue strain.

On July 22nd, 1931, he left camp at 19,000 feet with two companions to make the ascent of a neighbouring peak, 21,400 feet in height. This was accomplished, but on the return journey he was carried away by an avalanche which carried him down some 400 feet, swept him over a bergschrund some 30 feet high, and finally subjected his thorax to very great pressure as the snow consolidated. He was able to extricate himself and to return to camp unassisted, though he suffered from considerable breathlessness on the way. I examined him in camp and found a fracture without displacement of the right tenth rib. The fracture was causing him very little pain and, having no wish to restrict his breathing at so low an atmospheric pressure, I did not strap his chest. He continued somewhat hyperpnœic at intervals during the evening.

On the following day the weather was very cold and it was impossible to leave the tents. The patient therefore had a day of complete rest in his sleeping bag. He suffered practically no inconvenience from the rib and his breathing was normal for that altitude. On July 24th the weather was fine and he insisted on starting out. The expedition he planned involved the crossing of a neighbouring pass about 20,000 feet high. He felt rather unfit on starting, but ascribed part at least of this feeling to staleness and the difficulty he had experienced in sleeping at this altitude. But soon after the start he developed an irritating cough and became very hyperpnœic. At about 19,000 feet he began to retch heavily, and decided to turn back. On the return journey he had several attacks of retching and at a height of about 19,000 feet he lost consciousness for a few seconds. He required assistance owing to the weakness of his legs.

On reaching camp he found that I had gone down the glacier to a camp at 16,000 feet. He wisely decided to follow, but was so weak that he had to be assisted by porters. His breathing, however, improved steadily as he descended. When I examined him he was still hyperpnœic but when he lay down in my tent his breathing soon became normal. Panting attacks followed any attempt at effort. His chest was clear of physical signs.

On the following day his respiration was perfectly normal, except on great exertion.

COMMENT.

A man, who had become apparently perfectly acclimatised to a low partial pressure of oxygen, had his chest movements restricted by bruising of the thorax. As a result he suffered from anoxæmia and developed symptoms usually associated with a sudden reduction of the partial pressure of oxygen in an unacclimatised person. The margin of safety is low. Pneumonia at high altitudes is for the same reason rapidly fatal, the condition of the patient being similar to that of a pneumonic patient at low altitudes whose oxygen demands are suddenly increased by movement.

(*Continued from previous page.*)

conservative treatment, surgical intervention, with forcible dilatation of the cardiac sphincter from below, is indicated.

In those cases in which papillomatous growths are known to be present either before treatment is started, or in spite of treatment, it would seem advisable to insist that the patient present himself regularly for œsophagoscopic examination so that any over-activity of one of these nodules may be noticed early and treated accordingly.

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A CASE OF
BRUCELLA ABORTUS INFECTION.

BY F. BEDO HOBBS, M.D. CAMB., M.R.C.P., D.P.H. LOND.,
MEDICAL OFFICER OF HEALTH FOR FARNHAM, SURREY.

Bassett-Smith[1] states that on account of its variety of forms undulant fever is seldom recognised in its early stages in countries where it is known to exist, and that nearly every case is first treated for some other disease. If this is true in countries where the disease is known to be endemic it is still more likely to happen when the disease is rarely seen and is sporadic, as it is in this country.

HISTORY AND BACTERIOLOGICAL FINDINGS.

The patient, a lady aged 56, on Nov. 19th, 1929, felt generally out of sorts and discovered that she had a temperature of 102° F. She complained of feeling chilly; she had headache and a pain in the right side of her chest. Apart from the temperature and a rapid pulse there were no physical signs of disease, and it was thought that she was probably suffering from a chill, for she had got wet through a few days previously. The temperature gradually fell during the next few days, but from Nov. 26th onwards it steadily rose again, being a few points higher each evening until it reached its maximum of 101° on Dec. 6th. By this time the patient was looking distinctly ill. There was a slight cyanotic tinge about her lips and face, the tongue was very furred, the pulse was persistently rapid, the abdomen was tender all over, and she was somewhat constipated. She complained of pains in different parts of the body, but especially in the head and less frequently in the back, chest, and legs. She had a slight cough and there were a few râles at the base of the right lung. Her blood was found to agglutinate *Bacillus paratyphosus* B in a titre of 1 in 150.

During the next few days the temperature gradually fell, but from Dec. 12th to 19th it steadily rose again. The abdomen was rather doughy and distinctly tender on palpation, especially in the right iliac fossa. Flatulence was troublesome and the bowels were very constipated. The spleen was not definitely palpable. Pains of a rheumatic type were complained of, particularly in the calves, head, and neck. The pulse-rate was persistently over 100 and drenching night sweats were a very marked feature. Towards the end of December several red scaly papules appeared on the arms and buttocks, but were not like the rose spots of typhoid. On Dec. 19th the blood was found still to agglutinate *B. paratyphosus* B in a titre of only 1 in 150. Since the patient had never had typhoid or paratyphoid fever, and had not been inoculated against them, it was felt that agglutination in this low dilution at this stage of the illness was not sufficient to warrant a diagnosis of a paratyphoid infection. A blood count showed: 5,500,000 red cells, 4000 white cells, for their help and to Dr. Boulgakov, who kindly drew the sketches for me.

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Glandular fever also occurred as a possible diagnosis, because at one time in this illness I had two cases of glandular fever under my care (one of which was recently described by Evans and Robb[3]) in which profuse sweating and polymorphopenia with lymphocytosis were marked features. Glandular fever should, I think, be added to Kern's list of differential diagnoses, because the characteristic enlargement of the superficial lymph glands, which is nearly always present, is sometimes delayed for two or three weeks; even the presence of these glands will not entirely serve to eliminate an abortus infection, for this was a feature of the case reported in Scotland by Norman and Robert Cruickshank.[4]

The agglutination to a member of the enteric group in a low dilution may be misleading, as in this case. In the case reported by Scott,[5] *B. typhosus* was agglutinated in a dilution of 1 in 150, probably due to war-time inoculation; Warren, Smith, and Linder[6] report two similar cases, in one of which an injection of typhoid vaccine may have been the explanation. There was no available explanation for the other case, and this, like mine, was probably due to cross-agglutinins.

The outstanding feature appears to be a wealth of symptoms with a dearth of physical signs, and among the many disorders of function occasioned by any prolonged fever the main characteristics appear to be:—

Fever, very frequently of an undulant type with a periodicity of five to seven days.

Sweating, which is particularly troublesome to the patient and is usually severe and occurs at night.

Joint and muscle pains, especially in the early stages of the illness.

Blood count.—The red count varies from normal to a mild secondary anæmia, but the white count is nearly always decreased, and the differential count shows a low polymorph and a high lymphocyte figure.

My figures of 19 per cent. polymorphs and 77 per cent. lymphocytes, which were confirmed by another observer, were extremely marked in this case. Kern,[2] in his comprehensive report of 36 cases, gives the lowest polymorph figure as 22 per cent. and the highest lymphocyte as 62 per cent., though Bierring[7] among his 150 cases records a relative lymphocytosis of 79 per cent. As the ultimate diagnosis must depend on the agglutination reaction and the demonstration of the *Br. abortus* organism it behoves everyone to carry out these investigations in all cases of continued obscure fever.

Treatment.—Salol seemed to have a beneficial effect in the early stages of the illness but did not appear to be of any value later. American observers seem rather sceptical as to the value of vaccine treatment, because it is a disease in which antibodies are present in large quantities in the blood. In the above case the patient's condition certainly began to improve with the administration of the vaccine, though whether this was post or propter hoc I should not like to say on one case alone.

In conclusion, I should like to express my grateful thanks to Dr. Geoffrey Evans for his continued help in a long and difficult case.

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BRITISH MEDICAL ASSOCIATION.

ANNUAL MEETING IN EASTBOURNE.

SECTION OF SURGERY.

AT the meeting of this section, held on July 24th, with Mr. HAROLD UPCOTT (Hull) in the chair, Mr. GEOFFREY JEFFERSON opened a discussion on the

Surgical Treatment of Trigeminal Neuralgia.

He said that it was necessary to define the type of neuralgia that could be truly termed trigeminal neuralgia. In his experience the true trigeminal neuralgia cases were slightly rarer than intracranial tumours, and no inference could be drawn from the sex incidence. The pain was confined to one side of the face, and at the onset to one division of the nerve, usually the second or third, but it spread relatively rapidly to involve both second and third divisions. Involvement of any nerve but the trigeminal was rare, and the first division was very seldom involved. The pain was brief in duration, and when it passed the patient was usually comfortable. The stimulus necessary to produce the pain was often very slight, such as a breath of wind, or the actions of talking and eating, so that these patients tended to have a mask-like countenance or pseudo-palsy. The quality of the pain was sharp or lancinating, in contrast with the burning, throbbing pain characteristic of an inflammatory lesion. The term "tic-douloureux" was not a good one, since many patients did not have spasm, and when they did the pain was present before the facial movement.

In cases of true trigeminal neuralgia remissions were an important feature; these might be of brief or of long duration, sometimes years passing between attacks, but there was no regularity in the time intervals. The pain was strictly anatomical in its distribution, and in Mr. Jefferson's series occurred only in 2 per cent. of cases in the first division, a point of considerable interest in connexion with surgical treatment. In the second division the pain was superficial in character, and appeared to be in the soft parts, chiefly the upper lip; in the third division the pain was deep seated, affecting the bone and gum, and extending back to the tragus, little or no pain being referred to the tongue.

ATYPICAL NEURALGIAS.

Mr. Jefferson then dealt with the difficult group of atypical neuralgias; the pain was continuous in character and of a pulling quality. It usually affected all divisions of the nerves from the onset and frequently overflowed to the neck and shoulder. The diagnosis of such cases was important, since surgical procedures which were efficacious in the true neuralgias give no relief. A mistaken diagnosis might be made in cases of glossopharyngeal neuralgia, owing to paroxysmal pain in the ear, but in these cases there was no implication of the face. Surgery was not effective in cases of post-herpetic neuralgia, except in the few cases where the pain is paroxysmal. In another small group the pain was due to the pressure of a gumma or tumour affecting the Gasserian ganglion. In these cases, however, there was nearly always analgesia or anæsthesia of the affected area, whereas in the true paroxysmal neuralgia there was no alteration in the sensory perception of the skin, certainly no diminution.

TREATMENT.

Mr. Jefferson then discussed the treatment, giving a brief account of the history to show the evolution that had taken place. Hutchinson's operation for the removal of the lower two-thirds of the ganglion long held the field for the three reasons that had led him to perform it: (1) that the ophthalmic division was rarely affected, (2) that by leaving the first division the cornea remained sensitive and neuroparalytic keratitis was avoided, and (3) that the cavernous sinus was not injured. This operation had been abandoned for the more modern one of division of the sensory root by the temporal extradural route, in which the cavernous sinus was in no danger. This procedure had lowered the mortality-rate to a remarkable degree, and it was now 0·6 per cent. or less. The total division of the sensory root was open to the dangers associated with an insensitive conjunctiva; a further modification consisted in the preservation of those fibres in the root that supplied the eye, and was spoken of as "fractional division of the sensory root," this being made possible by the grouping of predestined fibres in the root. The selection of fibres to be cut might be rendered impossible by previous alcohol injections. The results of this fractional division were all that could be desired as regards relief of pain, and left a minimum of anæsthesia, the line of demarcation passing through the centre of the cornea, thus very considerably reducing the risk of keratitis. Attempts should always be made to spare the motor root also. Mr. Jefferson held that, considering the power of selection and the low mortality of the modern operation, alcohol injections should be reserved for those cases which were judged to be physically incapable, by reason of age or existing disease, of undergoing operation.

ALCOHOL INJECTIONS VERSUS OPERATION.

Mr. A. A. **McConnell** (Dublin) said that the diagnosis was on the whole easy, but that young people or those with pain in the first division should be suspect; he agreed that such patients were not improved by surgical interference. Alcohol injections had dangers which should always be borne in mind, and unless performed by those experienced in the technique might lead to fixation of the eyeball or to deafness from blocking of the Eustachian tube. In his opinion the patient was unfortunate who had a primary successful injection of alcohol; when the symptoms recurred they submitted to further alcohol injections, which might have little success. In his view injections of the different divisions of the nerve tended only to tide the patient over his pain into a period when he became too old to have operative procedure. The average age of patients operated on by him was 65 years. Care in technique was of great importance, particularly in certain respects. If after the section of the root there appeared to be even the slightest bleeding, a muscle plug should be placed on the foramen into the posterior fossa, in order to prevent blood from passing into that region and from giving rise to basal meningitic symptoms. If troublesome bleeding occurred during exposure of the root, Mr. McConnell advised stopping the operation and proceeding to section of the root a few days later. Keratitis appeared to be much less frequent since posterior root section had become the classical operation. The fact that there was no interference with the ganglion probably contributed to the absence of keratitis as a sequela, since keratitis still occurred frequently after ganglion injections. He emphasised the fact that old people stood section of the sensory root better than any other operation.

Mr. H. S. **Souttar** said that the division of the root was the ideal procedure, but had some praise for alcohol injection of the ganglion, a procedure that occupied a few minutes, and in his experience gave satisfactory results. He used a modification of the Härtel method. The lambda was defined, and one finger placed on it, the needle was then introduced one inch outside the angle of the mouth, neither above or below, and pointed to the index finger on the lambda, the remaining procedure being the same as in the Härtel method. After the foramen ovale had been entered, it was important to pause for a moment to make sure that no cerebro-spinal fluid was coming from the needle; if this occurred it meant that the needle was not in the ganglion, but in the subarachnoid space, and should be withdrawn. If the ganglion had been entered he introduced a minute quantity of novocain and tested for anæsthesia; if this test was positive he slowly introduced 1 c.cm. of alcohol. His custom was always to stitch the upper and lower eyelids for five days, and he had had no trouble from keratitis.

IMPORTANCE OF ACCURATE DIAGNOSIS.

Mr. **Norman Dott** said that the physical cause of this disease was quite unknown, but it must be recognised as a definite clinical entity when cases were being selected for treatment. Atypical neuralgia was quite unsuited to surgical interference, with the one exception of neuralgia secondary to malignant disease. In defining the disease he looked for certain symptoms, (1) the site of the pain, (2) its character, (3) the causes of precipitation of the pain, (4) the periodicity of the pain. He laid some stress on the fact that a diagnosis could be made, because nearly all the cases sent up to him showed clear evidence, from the procedures to which they had previously been subjected (e.g., extraction of teeth, operation on sinuses), that the clinical characteristics of trigeminal neuralgia were not properly understood. He was in the habit of injecting a little novocain or percain into the ganglion as a diagnostic measure during an attack. In old patients, as Mr. McConnell had said, the operation was a slight one, and the patients were allowed up on the second day. He did a partial division of the root, in most cases sparing the motor root; although bilateral cases were rare, it was important to leave this root intact in case the patient should get a recurrence on the opposite side. This operation produced a cure, since the division took place before the fibres had entered the ganglion. He paid particular attention to the eye; and if the whole root had been sectioned the patient wore goggles after leaving hospital. If conjunctivitis supervened the eye should be left alone, no active treatment being pursued; but the sparing of the ophthalmic root appeared to be the best protection against keratitis.

Mr. **Donald Armour** said that Spiller had wrongly credited with the modern operation of rc section; Victor Horsley was the first person to divi the sensory root on Dec. 11th, 1890, and it was ri that his name should be associated with the intrc duction of this procedure. In Mr. Armour's experien patients with atypical neuralgia refused operati when they were told that one side of the face would b anæsthetic after operation, whereas true sufferer welcomed anything that would give them relief fron the spasms of pain. He was dubious about t advantage of alcohol treatment.

The **President** said that patients were sometim ungrateful, and came back complaining of an un fortable sensation in the anæsthetic area.

Mr. **Jefferson** agreed that paræsthesia gave gre trouble in some cases. He thought that the division of the sensory root was the correct procedure, and that alcohol should be kept for the very aged and infirm.

SECTION OF ORTHOPÆDICS.

Mr. A. S. BLUNDELL BANKART presided over the meeting of this section held on July 23rd, when Prof. W. E. GALLIE, of Toronto, opened a discussion on the

Transplantation of Bone.

He said that although bone transplantation had proved to be one of the most spectacular and important additions to surgery within the last 20 years, the development of a perfect technique had been slow and even now failures and disasters were frequent. A review of his cases had shown that among the causes of failure, infection was the most important, since it might not only prevent the graft from uniting to the bed, but also introduced the complication of *septic necrosis of bone. Prof. Gallie had noticed* great differences of aseptic technique in different operating rooms; he himself used the Lane technique in all its details. Albee, on the other hand, depended on rapid and skilful performance to safeguard the patient. Certainly the Lane technique, unless skilfully and carefully used, only complicated and prolonged the operation. Prof. Gallie recalled the fact that a bone transplant, unlike those of skin and fascia, dies and ultimately undergoes complete absorption in its new bed. He showed lantern-slides demonstrating both the gross and microscopic appearances of this process and drew particular attention to the lacunæ where cells were dead or had disappeared, those cells alone remaining alive which were in the cut ends of Haversian canals and so able to use any lymph available. These cells must not be abused, as by burning with a hot-saw; any technique should protect the endosteal and periosteal aspects of the graft, where such cells abounded. The slides showed new capillaries growing into open Haversian canals, and osteoblasts making excavations in the dead graft; then a few days later such cavities were shown plastered with new bone till ultimately the whole graft was absorbed and replaced by new cancellous bone. Success depended on (1) primary union; (2) firm healing of graft to bed; (3) final union of fragments to one another. An analysis of failures showed that the commonest defect was not securing contact of graft to bed *over a sufficient area;* in radius or ulna for example, a graft should be embedded 1½ in. into each fragment; in tibia *2½ in. at each end. Another common error was* insufficiently close apposition between graft and bed; even such a gap as one-eighth of an inch would cause non-union, and experimental work provided convincing evidence that close apposition was all important. Successful grafting thus called for a fair degree of craftsmanship. Immobilisation was of even greater importance in a bone-graft than in a simple fracture, and to secure it both an external splint of plaster-of-Paris and internal fixation should be used till consolidation of callus had had time to occur. *The bed into which the graft was placed should be* vascular. The ivory, sclerosed ends of bones, which were usually present in the cases that need a bone-graft, were unsatisfactory in this respect and the graft must extend beyond such areas and come into contact with healthy bone. Some writers contended that the mere removal of the sclerosed ends and free opening up of healthy bone were in themselves sufficient treatment, without the insertion of the graft, but Prof. Gallie did not agree with this. In any case the technique should vary with the problem presented and the same plan should not be adopted in all cases; the mechanical details should only be settled after the field of operation had been exposed. An adequate incision was essential, but the periosteum should not be needlessly stripped from the bone ends. For slender bones like the clavicle, radius, ulna, and fibula, Prof. Gallie advised the diamond-shaped graft, which should be sprung into the *bed and further secured by beef-bone pins,* passed transversely, so that during application of the splint the graft should not be shot out of the bed. He demonstrated this technique by lantern-slides. He condemned the medullary peg, as it too often acted as *a plug, preventing the necessary outflow of osteo*genetic tissue from the bone ends. A graft of the whole fibula into the shaft of the femur did not have this drawback, as its central cavity was available for osteoblasts. He advised the inlay-graft for big bones like the tibia. Before grafting it was necessary to restore alignment and secure proper apposition, which might demand screws or even metal plates. The graft itself must (1) contain living elements; (2) be strong enough to act as a temporary splint; (3) resist disintegration till sufficient new bone had been laid down to prevent its collapse. To attain these ends it should contain both endosteal and subperiosteal cells, but the periosteum need not be taken with it, since when left behind it could be sutured to close the cavity from which the graft came. *Experiments* showed that loose-textured bone such as rib-bone resulted in the most active proliferation, but such a graft fractured readily if subjected to strain. When available, a sliding-graft was the best. A region where the rib-graft gave a good result was the mandible. Prof. Gallie showed slides to demonstrate the technique of splitting the graft, so as to apply its central surfaces to the raw surfaces of the jaw. He showed also his special instruments for drilling and tapping bone to receive the boiled-beef bone-pegs. He advised making the hole in the graft loose, so that the peg could be screwed right into the bed. He strongly recommended the shortening of a bone, so as to get end-to-end union, rather than an attempt to bridge a wide gap. When bridging was unavoidable, he used a diamond-graft surrounded by multiple slivers and also crushed cancellous bone. The graft was cut with the motor-saw. Prof. Gallie believed that strict adherence to the principles he had outlined would make failures rare.

Sir ROBERT JONES and other speakers having congratulated Prof. Gallie on his convincing and vivid presentation of the subject, Mr. R. C. ELMSLIE said that in his view the external splint should not be changed too soon—e.g., in two weeks when the graft was least stable. In reference to the death of the graft, he quoted cases which suggested that its proximal end was revivified very *rapidly. He had* found it easy to bridge gaps in the tibia left by old osteomyelitis, but not those of ununited fractures. He inquired whether Prof. Gallie resorted to the two-stage graft operation—i.e., preliminary excision of scar-tissue, which had proved so useful with war cases. He did not agree that it was wise to shorten the lower limb much.

The PRESIDENT commented on the curious *fact* that terminal grafts often united well, though bridge ones seemed not to do so. As an old pupil of Lane he was glad to hear that there was still a field for internal fixation apparatus.

Sir W. DE COURCY WHEELER agreed that terminal grafts were effective and quoted cases showing the amazing way in which some grafts survive in the presence of sepsis.

Mr. H. PLATT commended the two-stage operation for fractures in civil life where non-union had followed infection and necrosis, but he did not believe in shortening the lower limb, though the procedure was useful for the upper limb.

Mr. A. MITCHELL asked what was the best type of graft for fusing the sacro-iliac joints, and Mr. ROWLEY BRISTOW asked what was the best method of fusing tuberculous hips, as Hibbs's technique did not appear to give the same results in other people's hands as in his own.

Prof. GALLIE replied that being usually unable to distinguish between sacro-iliac and lumbo-sacral involvement, he preferred a massive graft which fused both—i.e., a piece of the posterior part of the ilium. In regard to tuberculous joints, he was loth to open them up, as he had had a death from tuberculous meningitis after excising a localised tuberculous cavity from the neck of the femur.

Adolescent Coxa Vara.

Mr. G. S. PERKINS read a short paper on adolescent coxa vara—i.e., slipped epiphysis. He pointed out that the cause of separation of the epiphysis was unknown and that in these cases it occurred exactly through the epiphysial line, not through part of the diaphysis, as in true traumatic cases. He divided cases into four types: 1. Minor incomplete separation which he considered irreducible. This could only be diagnosed by most careful examination of a skiagram. The only treatment necessary was rest—e.g., by a well-fitting calliper. 2. Repeated incomplete slippings, also in his opinion irreducible, since forced manipulation merely strained the capsule and led to stiffness later. These also required rest and if late deformity was severe, an osteotomy could be performed. Early osteotomy merely produced aseptic necrosis of the head and stiffness. 3. Rapid, complete slipping, which was best reduced by gradual traction, 20 lb. applied by means of a pin through tibia or lower end of femur, no other fixation being needed. X rays showed excellent results from this method. 4. Late coxa vara, in which the arc of range of the hip is abnormal, internal rotation and abduction of the joint being reduced and their opposites increased. If this gave disability, the range should be improved by a subtrochanteric osteotomy. Persistent arthritis following any of these groups should be treated by arthrodesis.

REVIEWS AND NOTICES OF BOOKS

An Introduction to Medical Statistics.

By HILDA M. WOODS, Assistant Lecturer, London School of Hygiene and Tropical Medicine; and WILLIAM T. RUSSELL, Statistical Department, Medical Research Council. London: P. S. King and Son, Ltd. 1931. Pp. 125. 7*s.* 6*d.*

HOWEVER much he may wish to do so, the medical officer of health cannot escape from the more elementary forms of statistical analysis. Often he can show the success of his régime only in statistical terms, or perhaps explain its apparent failure by knowing the fallacy of accepting certain statistical values merely at their face value. He must know how to assess the size of the population of his area between censuses, and to calculate its vital indices—birth-rate, death-rate, infant mortality-rate, and the like. The crude death-rate, he should, and usually does, realise, may convey a wrong impression, and he should be familiar with the meaning of the standardised death-rate and the methods of computing it. These are only the bare essentials. All public health workers will be in a position to make a much better use of their material if, in addition, they are familiar with the various constants of the frequency distribution, and the measurement of interrelationships as exemplified in the coefficients of correlation and regression. It is to meet the needs of such workers that the book has been written; it is intended, the authors state, as a simple introduction to statistical analysis, suitable to the needs of those taking the course for the Diploma in Public Health. It should fulfil this purpose extremely well, being written concisely and clearly, demanding no knowledge of algebra, and providing carefully chosen examples of the calculation of each statistical constant which the worker should have no difficulty in mastering and applying to his own data. The work deals with the elements of census-taking and the English registration system; the tabulation of data and its expression in graphical form; the calculation of vital indices, crude and standardised; the various constants in use as averages and measures of dispersion; correlation and regression; life tables and sampling. The only chapter which is at all difficult to follow is that on sampling, and this is a subject which is admittedly very difficult to convey to the beginner, even in its most elementary form.

This book should be of value in a wider field than that of the special class of students that the authors had in mind. For the general reader who wishes to understand economic and social statistics, as Prof. Major Greenwood points out in his preface, guide-books are plentiful. But the statistics of the General Register Office are quite as important as those of the Board of Trade or the Ministry of Labour to anyone who wishes to understand the world we live in, and guides to the methods used in analysing them are not so easy to find. This elementary handbook should inspire many students to go further into a subject, often maligned, which they will find fascinating.

Physiology of Muscular Exercise.

Third edition. By F. A. BAINBRIDGE. Rewritten by A. V. BOCK, M.D., Ph.D., Assistant Professor of Medicine, Harvard; and D. B. DILL, Ph.D., Assistant Professor of Biochemistry, Harvard. London: Longmans, Green and Co. 1931. Pp. 272. 15*s.*

THE physiology of muscle contraction has bulked largely in the literature of recent years, but much of what has been written has been essentially academic, that is, has dealt with the activity of the muscle as an isolated tissue. It is refreshing therefore to turn to a book which makes clear the interdependence of heart, brain, and muscle. The story told by the late Prof. Bainbridge is here elaborated in the light of recent investigations. It says much for the careful work of the original author, that most of the conclusions reached by Bainbridge in 1918 still hold good. After dealing with the chemical aspects of the contraction of muscle, the ancillary factors involved in the maintenance of muscular efficiency in the individual are considered. The importance of the heart is shown by the fact that at rest the circulation-rate round the body is about 6 litres per minute, and that this may be increased to 20 litres during heavy work; the coronary circulation is held to be seven times as great as when the body is at rest. No evidence is adduced to show that adrenalin appreciably modifies the tone of the blood-vessels during exercise. By constriction of the splanchnic vessels, and dilatation of the muscle capillaries, the circulation through the muscles may be increased by six to nine times that obtaining during rest. It is concluded that the coördination is effected by the central nervous system, and that the maximum working efficiency is determined not only by the functional capacity of the muscles, but also by the supply of oxygen to muscle, heart, and brain.

The authors make some interesting observations on the physiology of athletics, and offer suggestions of practical importance. They have found no certain evidence that the practice of athletics by men in good condition is injurious to the heart, or that the longevity of athletes is altered by strenuous courses of physical training. They have formed the conclusion that while diet must be adequate in amount, and must be properly assimilated, its exact nature is of little importance. The summaries at the end of each section of this book and the comprehensive bibliography add to its value.

La poliomyelite.

By Dr. PAUL DUHEM, Electro-radiologiste de l'Hôpital des Enfants Malades. Paris: Gauthier-Villars et Cie. 1931. Pp. 137+xi. Fr.25.

THIS is a good little monograph. It gives in a clear, brief, and accurate manner an outline of the main features of poliomyelitis. The author has had experience of about 800 cases, most of which it has been his duty to treat by electrical methods. Perhaps the most valuable parts of the book are those which analyse the paralyses from which the commoner deformities result, and describe the treatment by various physical methods during the stages of recovery.

Therapeutics, Materia Medica, and Pharmacy.

Fifteenth edition. By SAMUEL O. L. POTTER, A.M., M.D., M.R.C.P. Lond., formerly Professor of the Principles and Practice of Medicine in the Cooper Medical College of San Francisco. Revised by R. J. E. SCOTT, M.A., B.C.L., M.D., New York. Philadelphia: P. Blakiston's Son and Co., Inc. 1931. Pp. 997. $8.50.

THE original purpose of the author was to present in a single volume and in a concise manner the essentials of materia medica and therapeutics. Dr. Scott has made no change in the general plan, but the book must be regarded as a compilation rather than a critical account of modern pharmacology and therapeutics. Part I., the largest section of the book, contains a list of all the official and many of the non-official drugs arranged in alphabetical order, and gives an account of the important preparations, the pharmacological action, and the therapeutic uses of each. Part II. is devoted to pharmacy, and has been written with the view of offering to the young practitioner the information necessary to enable him not only to prescribe but also to dispense his own medicines. Part III., the therapeutic section, opens with a list of standard authors, and then proceeds to deal with the treatment of various diseases, arranged alphabetically, by giving a list of the chief remedies recommended by these authors. Under diabetes insipidus, for example, there appears the following: "Ergot has cured many cases. . . . Adrenal extract has given good results. Nitroglycerin has been employed with good results. . . . Sodium salicylate, in small doses, very effective in some cases. . . . Alum has produced good results." This may conceivably be of some value to a practitioner at his wits' ends to know what to do for an incurable disease, and glad of any kind of suggestion of some drug he has not tried; but it does not help in that simplification of modern therapeutics to which the editor in the preface to the previous edition gives his hearty approval. The next edition would be improved if it were less encyclopædic and more critical.

Teeth, Bony Palate, and Mandible in Bantu Races of South Africa.

By J. C. MIDDLETON SHAW, M.A., B.Dent.Sc., D.D.S., Professor of Dental Science, University of the Witwatersrand, Johannesburg. With a Foreword by Sir ARTHUR KEITH. London: John Bale, Sons and Danielsson. 1931. Pp. 134. 12*s*. 6*d*.

IT is satisfactory to get a solid contribution to anthropology from an active member of the dental profession, for the teeth and jaws play such an important part in the history of man. Sir Arthur Keith in his preface tells us that the investigations of Dr. Middleton Shaw are valuable because previous to their publication anatomists had no detailed knowledge of the teeth and jaws of the Bantu race. The work consists of a minute study of Bantu teeth and jaws, normal and pathological. In general, these teeth show much the same characteristics as those of other races, though they are larger than those of the modern Englishman or Bushman. The third molars, though more liable to variation than the first or second molars, are well-formed functional teeth. Dental caries is rare, but degenerative changes of the alveolar bone are common, and over 50 per cent. of the skulls examined show some degree of alveolar absorption. It is interesting to find that the condition of taurodontism, which is characteristic of the teeth of Neanderthal man, is also found in hybrids where the elements of fusion were Bantu or Bush with Boskopoid or Australoid peoples. Dr. Shaw gives a good account of the mutilation of teeth in different tribes.

Recent Advances in Entomology.

By A. D. IMMS, M.A., D.Sc., F.R.S., Chief Entomologist, Rothamsted Experimental Station, Harpenden. London: J. and A. Churchill. 1931. Pp. 374. 12*s*. 6*d*.

THIS book is produced on the same lines as the other volumes in the valuable "Recent Advances" series. It summarises in a compact form the additions to entomological knowledge obtained within the last few years on a number of selected subjects. These include external morphology, palæontology, and phylogeny, sense organs and reflex behaviour, coloration, certain aspects of ecology, parasitism, and biological control. A short but well-selected bibliography is appended to each section. The author's object throughout has been to balance pure and applied entomology, and to illustrate the practical applications of a knowledge of insect physiology and ecology. The outlook on the applied side is purely agricultural; no aspects of medical entomology are considered.

Brain, Mind, and the External Signs of Intelligence.

By BERNARD HOLLANDER, M.D. London: George Allen and Unwin. 1931. Pp. 288. 12s. 6d.

THE thesis of this book is the importance of cerebral localisation to the understanding of the varying abilities of man. It is richly illustrated with references, lengthy quotations, diagrams, and photographs of men eminent in science, literature, art, philosophy, and crime. With such a deep well of information from which to obtain facts, one would have expected interesting arguments in favour of a theory of localisation which closely approaches, if it does not actually endorse, the teachings of phrenology. The arguments in the book are extraordinarily inconclusive however in that, while the author at one stage appears to accept the fact on eminent authority that the brain works as a whole, he still brings forward evidence, largely from the middle of the nineteenth century, that human behaviour in its manifold expressions is dependent upon local development of the cortex, and that this influences head shape. While enthusiastic about clinical observation, he derides laboratory technique, both physiological and pathological. The work of Lashley, which he may know, is not mentioned. He is of the opinion that the brain is as much an organ for the expression of instinct and emotion as it is of intelligence, but he devotes his attention entirely to the cortex, ignoring the importance of the thalamus in this respect and the part played by the endocrine glands in the governing of temperament. While endorsing the general thesis of Kretschmer, he is so captivated by the shape of heads that he seems to ignore the fact, confirmed by biological as well as by neurological studies, that behaviour is a function of the organism as a whole. The book, however, has a certain value at the present time when constitution is so much discussed and cerebral localisation theories are in the melting pot, and the rich bibliography is a measure of the author's wide reading.

Les malades dits imaginaires.

Par M. NATHAN, Ancien Interne des Hôpitaux de Paris. Paris: G. Doin et Cie. 1931. Pp. 134. Fr.14.

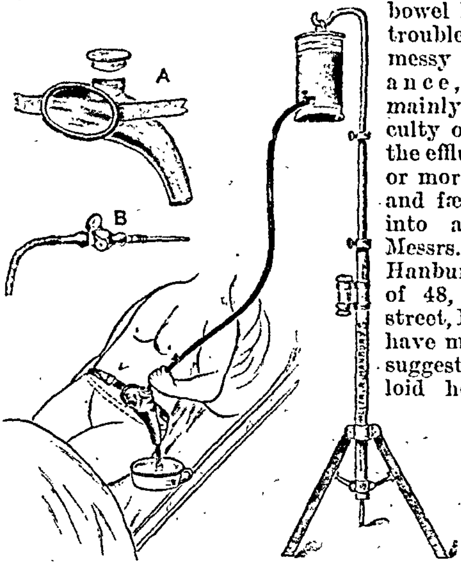
DR. Nathan's attitude to his subject may be recognised from his interpolation into the famous phrase. Imaginary invalids, in the literal sense, do not exist for him; but he is well aware of the hypochondriacs and other true invalids who have been so regarded. His book is characteristic of modern French psychiatry in its insistence on metabolic, endocrine, and autonomic changes. He points out that many patients have been designated "malade imaginaire" because they did not fit into any category known to the physician, and he rehabilitates them, to use his own expression, by pointing out the significance of alkalosis, bile-stasis, hypersympathicotonia and its opposite, and disturbances of ænæsthesia. There are sections on obsession and "pithiatism," and a lengthy one on hypochondria which is of especial interest. The author discusses the alleged relation between hypochondria and paranoia, of which Génil Perrin made so much, and describes a group of "hypochondries de couverture" in which the hypochondria is only superficial. The final section on therapeutics, though brief, is of catholic range, and expresses well the view, so often put forward in the course of the book, that physical and psychic, especially affective, changes cannot be separated.

There are, as is natural, many references to Molière and the comic Argan he created, but Dr. Nathan has not mentioned the curious fact that this is one of the few instances where a disease has been named after a fictitious person: in Boissier de Sauvages's great Nosologia Methodica there is a section on "Melancholia Argantis, seu Melancholia aegrorum imaginariorum." Dr. Nathan quotes some acute remarks of Montaigne on "imaginary" illnesses.

NEW INVENTIONS

A NEW APPARATUS FOR THE MANAGEMENT OF A COLOSTOMY.

AS soon as a colostomy wound has healed the large bowel can be trained, by means of regular irrigation, to *empty completely every morning and to remain inactive* for the following 24 hours, but hitherto the morning toilet of the bowel has been a troublesome and messy performance, owing mainly to the difficulty of directing the efflux of a pint or more of water and fæcal matter into a receiver. Messrs. Allen and Hanburys, Ltd., of 48, Wigmore-street, London, W. have made at my suggestion a celluloid horn-shaped tube (shown on figure at A) which has proved most efficient in use and has minimised the unpleasantness of the daily action of the colostomy. The wide end of the horn is placed over the colostomy and held in position by a webbing band so devised that it can be clipped quite easily to the tube when the patient is lying down. At a suitable site on its convexity is a wide opening closed by a removable cap. Useful accessories are the collapsible stand and douche can, as illustrated, and a Canny Ryall metal nozzle with a thumb cock (B) at the distal end of the rubber tubing. Having applied the horn, the patient takes a 26 F rubber catheter, previously attached to the metal nozzle, and slowly inserts it into the bowel through the opening in the horn, at the same time regulating the flow of water by means of the thumb cock. When all the water *has been injected*, the *catheter* is removed, the opening in the horn closed with its cap, and a receiver, or better still a jam-pot, containing wea lysol, placed under its narrow end. The pati then reads the paper and smokes until the bowel has ceased acting. He then removes the cap, inserts the metal nozzle through the window in the horn, and flushes the surface of the colostomy and surround skin. The apparatus is easy to use, keeps the patien clean, and greatly diminishes the mental and physic discomfort of an evacuation.



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Harley-street, W.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 26, 1931.

THE WORLD TO-DAY.

General SMUTS devoted his presidential address at the centenary meeting of the British Association on Wednesday last to sketching the scientific world picture of to-day and to an attempt to state not what the world is—no one could do that seriously—but what it appears to us to be at the moment and in the light of the material, mental and spiritual progress which has been made in the hundred years since the Association was founded. Few men can be so well fitted to cover such a broad canvas. Statesman, scientist, philosopher, lover of his country and of mankind, he is capable of the general view to which his varied interests have led him, and it is no surprise to find that the main conclusion to which his argument leads is that matter, life, and mind are not three separate and unrelated categories but different levels of the same evolutionary activity of which the universe consists. The description of matter as an accumulation of particles was one of the great scientific achieve*ments of the nineteenth century. But it no longer* holds good; it was a scientific version of the common-sense view of the world and must now be abandoned. Space-time now appears as our concept of the only physical reality in the universe and the stuff of which the world is made is envisaged as events instead of material things. Matter and energy in all their forms have disappeared as independent entities and have become configurations of space-time—a conclusion which is probably, for the time being, none the less true because it is given to relatively few of us to understand precisely what it means; the important point to realise is that it cannot, by its very nature, be translated into the mechanistic terms with which alone most of us are familiar.

So too with life. Life is not an entity, physical or otherwise; it is a type of organisation, more [illegible]ely, the specific type of self organisation. [illegible]idual is a physiological whole in which [illegible]e differentiated for purposes of [illegible]hey are parts of the individual [illegible] be regarded as units which [illegible]vidual. *And the greatest truth* [illegible] conception of organic evolution; [illegible]g achievement of CHARLES DARWIN [illegible]nered this into the consciousness of [illegible] Life has progressively advanced from [illegible] few simple primitive forms to more [illegible]s and highly specialised forms, and under [illegible]ble influence of the internal genetic and the [illegible]al environmental factors it has most nicely [illegible]l itself to the ever-changing situations in [illegible]lf. In the process of this evolu[illegible] new functions and powers [illegible]red, culminating in mind and the crowning achievement of human personality. As General SMUTS has argued at length before, evolution results in the achievement of a *series of "wholes." A whole is not the sum of* its parts or constituted of its parts: its nature lies in its constitution. This is obviously analogous to the conception of matter and energy as configurations of space-time, and the general trend of the recent advances of physics has been towards a recognition of the fundamentally organic character of the material world. Thus if life is interfered with, we have death, not bits of life; and a part of the physical quantum of energy is not something less than a quantum, it is nothing at all. Both the living organism and the quantum are indivisible. EDDINGTON, HALDANE, and others have also pointed out that so far from biology being forced into a mechanistic physical mould, the position will in future be reversed and physics will look to biology and even psychology for hints, clues, and suggestions.

From matter, as now transformed by space-time and the quantum, we pass through life, which is a principle of organisation whereby the space-time patterns are arranged into organic unities, to mind which is a principle of making wholes by discrimination and selection from experience and which reaches its highest point in the realm of values. Modern physics is no longer bound by a rigid determinism of cause and effect and the free *creativeness of mind is possible because the world* ultimately consists not of stuff but of patterns, the evolution of which involves no absolute creation of something material from nothing. Matter, life, and mind are thus stages of an evolution; man has free will and his spirit is no pathetic phantom but a part of the universe in which it is at home and meets everywhere with spiritual response and hospitality. The whole of the world can be brought into one picture; science is doing its greatest good to man by the æsthetic and religious appeal which in its present form it makes to so many thinking people.

Allen & H

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CHRONIC ULCERATIVE COLITIS.

THE cause of this distressing and exhausting complaint is still obscure. For several years Dr. J. A. BARGEN, of the Mayo Clinic, has upheld[1] the claims of a diplo-streptococcus isolated by him from the colonic ulcers. The organism is slightly lanceolate and retains Gram's stain; it is rather difficult to culture but grows well in media with added sugars and rich in vitamins; on blood media it is slightly hæmolytic. It resists heating to 55° C. for three-quarters of an hour. BARGEN has isolated this organism in a large number of *cases of ulcerative colitis, usually by direct culture* of muco-pus taken from the edge of ulcers observed with the proctoscope; he has found it at the roots of infected teeth and in abscesses of the tonsils. The serum of patients agglutinates the organism only slightly, but animals can be immunised against it and a therapeutic serum has been prepared by

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[1] See THE LANCET, 1929, i., 145.

BARGEN from horses. In experiments on rabbits he has shown that inoculation with this organism can produce an affection of the mucous membrane of the bowel similar to the lesions of ulcerative colitis, and he has isolated the organism from the edge of the ulcers and from the mesenteric glands. Much discussion has taken place over BARGEN'S claims and results. At a recent meeting[2] of the Royal Society of Medicine, Dr. L. P. GARROD said he had found Bargen's bacillus in 11 out of a series of 17 cases and regarded its presence as significant. Dr. CUTHBERT DUKES however remarked that the organism could be isolated from other types of ulceration and from normal intestines; he had come to the conclusion that sufferers from this disease were born with intestinal apparatus which had a lowered resistance to bacterial infection. And Dr. A. F. HURST reiterated his observation that during life the appearance of the colon in ulcerative colitis was indistinguishable from that of bacillary dysentery.

The tendency of present-day medicine is certainly towards a pluralist view of the cause of ulcerative colitis, as may be seen in an important paper from the Pasteur Institute in Lille by MM. BUTTIAUX and SÉVIN,[3] who take it for granted that infections are the cause of ulcerative colitis, and report a series of elaborate tests in 132 cases of this disease. Their bacteriological studies were based on material obtained from the lower bowel by means of direct vision with the rectoscope, and they give their reasons for having abandoned the attempt to isolate the determining micro-organisms by cultivation of the fæces. Account was taken not only of the bacteria usually searched for, the *coli* group d streptococci, but also of the anaerobes and rilla. Cultures were also taken from the tonsils, h roots, and bile obtained by duodenal tubes; glutination tests were made on the patients' era; *the intradermo-reaction to various bacteria* was observed; and the stools were examined for pus, mucus, entamœbæ and their cysts, and protozoal parasites. The Lille observers conclude that micro-organisms of various groups may be responsible for the disease. Apart from the *Entamœba histolytica* as a cause of subacute and chronic dysentery, they allow the other protozoal parasites of the alimentary tract only a secondary rôle, in that they serve to keep up an irritative colitis which has been started by pathogenic bacteria; it is important however to take appropriate measures against these protozoa, especially *Balantidium coli*; and against intestinal worms. Coming to the diplo-streptococcus of Bargen they regard this as an important cause of chronic ulcerative colitis; the organism may be found in a state of comparative purity in the intestinal lesions, it can be grown outside the body, and it can reproduce the disease experimentally in the rabbit. But it is not specific for all cases of ulcerative colitis. The authors have isolated from many cases a new organism, a diplococcus which tends to form tetrads but not chains, is Gram-positive and immobile. It is aerobic; it will not grow on bile, but is resistant to heat and grows well on subculture in media containing blood or vitamins and sugars. Experimentally it produces lesions in rabbits. Five per cent. of their cases showed signs of chronic dysenteric infection, consequent usually on an acute attack of dysentery it may be years earlier. The low agglutination titre of the serum suggests that a lowered resistance has allowed an acute attack to become chronic. Success has attended treatment by bacteriophage administered by the mouth. In a further 11 per cent. the authors isolated the bacillus of Morgan; in these cases there was a good response to treatment with vaccines. They regard the gonococcus as a rare but troublesome cause of ulcerative proctitis. Streptococci were recovered 28 times and staphylococci 12 times in the 132 cases. The association of rhinopharyngitis with colitis is noted; *B. pyocyaneus* and *B. mucosum capsulatum* were recovered from bowel and nasopharynx in a considerable number of cases, for the most part of a mild character. The rôle of the anaerobes in causing secondary infection of ulcerated areas, especially just before death, leading to gangrene of the bowel is regarded as insufficient reason for the administration of antigangrene serum.

Summarising these observations it may be regarded as probable that apart from the organisms of Bargen and of Buttiaux-Sévin, chronic ulcerative colitis may be caused by recrudescence of an infection already healed but remaining latent in the body. Such agents are the bacilli of Hiss or Shiga in former dysenteries, of Friedländer in patients who have had nasopharyngitis, and of the salmonella group in former sufferers from paratyphoid. Certain organisms, customary inhabitants of the intestine and generally held to be mere saprophytes, may have their virulence exalted—e.g., *B. coli* or the enterococcus. Dr. BUTTIAUX and Dr. SÉVIN conclude that many cases of chronic ulcerative colitis are due to specific organisms, and their elaborate researches on the flora of the fæces may serve as a guide to other workers in this confusing region of clinical pathology.

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NATIONAL HEALTH INSURANCE IN FRANCE.

SOCIAL insurance was adopted as part of the programme of the Radical party in France as long ago as 1885, but only came to the fore when Alsace and Lorraine returned at the end of the war with a complete health insurance system on the German model. The advantages were so obvious that a measure providing similar facilities for the rest of the country was passed through the legislature in 1928. It was largely based on the German model, and was so repulsive to the French temperament that a storm of protest was raised, and the Government hastily suspended its operation. There was then an interim period of two years during which evidence was taken from various bodies, and a new scheme was drawn up; this became law in July, 1930. As is not uncommon in all countries, the medical profession was at first taken unprepared, but the interim offered them an opportunity which they did not fail to seize. So effectively did they combine, and so powerful was their threat of non-coöperation, that every one of their demands was granted, and the resulting scheme may fairly be called a system of health insurance after the doctor's own heart.

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[2] Ibid., 1931, i., 636.

[3] R.-Buttiaux et A.-Sévin: L'étiologie des colites ulcéreuses, Annales de l'Institut Pasteur, August, 1931, p. 173.

Medical men in France are grouped in local professional bodies known as *syndicats*, which are themselves united in a national federation claiming to represent 17,000 doctors. This federation raised a fund of over a million francs, set about a thorough analysis of insurance, formulated its demands, and called a mass meeting at which the demands were adopted. The dentists and pharmacists supported the doctors, and each profession formulated a programme for its own particular department. A propaganda campaign was organised; medical men were urged to maintain a united front, have nothing to do with the scheme, and sign no contracts until these demands had been met. The future insured patients were assured, by leaflets and notices, that the doctors had no wish to oppose insurance, but were determined, in the interests of the patients, that the insured should have the same service as the private patient. The doctors declared that they would never have practice divided into two groups, insurance and private; that they would not have each of their patients turned into a "number," to which medical services would be distributed as "benefits in kind"; and finally, most important of all, that the *sécret médical*, so profoundly revered in France, should never be violated. The slogan of the profession was *entente directe*, a private practice relationship for all insured persons. This involved free choice of doctor, pharmacist, midwife, masseur or other attendant; direct payment of all fees to the doctor by the patient at the time of consultation, and reimbursement to the patient later at the office of his approved society; complete safeguarding of professional secrecy; complete freedom of prescription; and purely medical control of medical matters. The profession insisted on its altruistic motive, and drove home the saying: "Opprimer le médicin, c'est tuer le malade." In fact, these requirements were completely granted, as will be seen from the description of the patient's procedure given on p. 707 in a summary of the provisions of the Act.

Although the revised law was supposed to come into force a year ago, there were certain delays, and there was, as may be imagined, considerable confusion in the early months. Insured persons had great difficulty in understanding what they were supposed to do, and since most of the responsibility for form-filling rests on them, there was for a time something approaching chaos in a good many *caisses*. The scheme can therefore be said to have been working only for about six months, and it is too early to express an opinion on it. It is certainly an extremely interesting experiment, peculiarly adapted to the French temperament. It preserves individualism in a collective movement, and makes the insured person—at least in theory—the equal of the rich patient, who can pick and choose where he pleases, and is allowed to be even fantastic in his choice. On the whole, it seems likely to work. There will, no doubt, be modifications in detail, but probably no alteration in principle. There is a possibility that the victory of the doctors was too great, and that there may be a reaction against the provisions which make the scheme so easy for them. There is severe criticism among all parties of the amount of form-filling and red-tape imposed on the insured person, and also of the discrepancy between the tariff of liability of the *caisses* and the amount that the people have to pay. A serious disadvantage for chronic invalids and victims of long illnesses is the six months' limit set to benefit; but this difficulty may be met when the disability scheme comes into force. In some quarters there is fear lest the *caisses* should organise their own medical service, as in Germany; this is naturally regarded as a potential calamity by the professional bodies, and every effort is being made to promote coöperation with existing health services.

MEDICAL INDUSTRIAL PSYCHOLOGY.

THE syllabus of lectures to be delivered at the London School of Hygiene and Tropical Medicine (see p. 710) indicates a claim to respectable ancestry on the part of a specialty that has been regarded as a newcomer to medicine. Galen's writings on the temperaments have encouraged Prof. Major Greenwood to welcome him as a clinical psychologist; Stahl's philosophical controversies apparently have reference to psychological problems as well as to chemical; and Ramazzini's study of industrial diseases will perhaps turn out to be anticipatory of modern views. It is Prof. Millais Culpin's share to link these older methods of approach with those current theories of psychology which throw light upon problems not unknown to our forbears, but more pressing in this industrialised age. Occupational selection and guidance must depend upon those factors in the material and psychological environment which will be dealt with by Mr. Eric Farmer and Miss May Smith, and further application of modern methods will be exemplified in the study of accident causation, sickness absenteeism, and the occupational neuroses. Although planned for the students in the School's class for the Diploma in Public Health, these lectures give a comprehensive survey of a subject that is more and more forcing itself upon the notice of medical men, and for the understanding of which their previous training has perhaps not equipped them sufficiently. The historical method of approach seems peculiarly suited to this subject—in which the mental attitude of the student is especially important—since it must involve the tracing out of earlier attitudes and their influence upon the development of psychology.

FINANCES OF THE BOMBAY HOSPITAL.—As the outcome of a representative conference to discuss the present difficulties regarding the provision of hospital facilities in Bombay, the Government of Bombay have appointed a joint committee to raise money from the public towards meeting the expenditure of the city hospitals and to distribute it in equal moieties between the government and the corporation. The funds so raised are primarily to be devoted to maintaining hospital facilities on the scale obtaining at the beginning of the present year.

ANNOTATIONS

MICHAEL FARADAY.

RATHER more than 100 years ago Oersted, in Denmark, observed that an electric current passing along a wire would deflect a magnetic needle in its neighbourhood, and soon afterwards Ampère, in France, described a dynamic action between conductors carrying electric currents. Then Arago and Davy discovered the power of an electric current to magnetise iron or steel, and there was abundant evidence that electric currents could produce magnetic effects. Everybody felt that the converse ought to be true, that magnetism could be converted into electricity; but it was not until 1831 that, after four years of patient investigation and failure, the crucial experiment was made on August 29th by Michael Faraday, then laboratory assistant to Sir Humphry Davy at the Royal Institution. On that day, as Faraday's diary shows, he wound two coils of wire on to opposite sides of a soft iron ring, connected one coil to a battery and the other to a galvanometer, and at "make" and "break" of the battery circuit observed deflections of the galvanometer connected in the other circuit. In this observation was the starting-point of the utilisation of electric power for the purposes of man. The centenary of that event, one of the greatest in history, is being celebrated this week. It is almost impossible for any mind to conceive the extent to which Faraday's discovery has revolutionised human life, and to-day we are only on the threshold of the potentialities which the dynamo has opened up. No one has ever carried out more fully the principles of inductive reasoning, but Faraday did not, it seems, himself visualise the application of his studies to the treatment of disease. Yet no department of medicine has been left unaltered by it. The use of electric current for the illumination of the body from within has given an enormous impetus to the early recognition of disease, while the X ray diagnosis and the electrocardiograph are both based on induced currents. The therapeutic uses of electricity are still largely unexplored, especially in relation to the ionic theory, which we also owe largely to Faraday's work.

The man to whom all this is due has a history romantic enough to be worthy of the fairy story that his work spells. He was brought up in great poverty and was almost entirely self-taught. His great chance came when he attended a series of lectures by Sir Humphry Davy at the Royal Institution in 1812. He made notes, copied them out, bound them—for he was by then apprenticed to a bookbinder—and sent them to the lecturer, expressing his desire for scientific work. Sir Humphry said to one of the managers: "What can I do with him?" Swift came the answer: "Put him to washing bottles—you'll soon see what he is fit for." So Faraday became bottle-washer in the laboratories of which 12 years later he was to be director. As with all really great men, the secret of his success eludes analysis. He had that innate genius which can never be explained. Perhaps the nearest approach to describing the mainspring of his life is made by Lord Rutherford when he says that it was the underlying idea of the unity of all the forces in nature. Faraday was a splendid type of the Baconian philosopher, with the faculty of clear and convincing exposition of the most abstruse subjects. In character, he was simple, modest, and singularly unselfish. To our own profession he was ardently attached, and the tie was mutual.

The Faraday centenary exhibition, which was opened at the Albert Hall on Wednesday afternoon by General Smuts before his induction as president of the British Association, will remain open until Oct. 3rd.

JOINT COMPLICATIONS FOLLOWING SCARLET FEVER.

RECENT research on streptococcal throat infections and acute rheumatic fever has revived interest in the streptococcal theory of rheumatism. Dr. H. Zischinsky has been analysing the records of some 20,000 cases of scarlet fever in Vienna.[1] He divides joint complications following scarlet fever into three groups: so-called acute rheumatoid arthritis, pyæmic arthritis, and a group of late-developing, heterogeneous, atypical instances of joint affection. Of his first group, into which 509 patients fall, there is little to say except that the nomenclature chosen seems unfortunate. Any or all joints may become affected by pain and swelling, usually between the fifth and twelfth day, and the involvement of joints of the cervical spine may sometimes give trouble in diagnosis. Of the pyæmic group of cases Dr. Zischinsky observes that he has little new to record, except to call attention to the good prognosis in these cases and the relative frequency with which the sterno-clavicular joint may be affected. His paper is mostly concerned with the third group; he believes that this atypical variety of joint involvement has become more frequent in recent years. His description of this group is based upon 102 cases, which form about 17 per cent. of the total cases of joint complications in scarlet fever, excluding cases of frank pyæmia involving the joints. The onset of joint trouble in these patients did not occur until after the twelfth day of the disease (in contrast with the rheumatoid group, where the onset was earlier) and the majority of patients were in the sixth or seventh year of life. Most of them showed a definite though moderate rise in temperature. In 61 cases a multiple arthritis was present; in the rest (41) a single joint was involved. In the mildest cases the only symptom was pain, frequently of a fleeting nature, while in others a certain degree of swelling occurred. The symptoms were usually of short duration, lasting less than five days in most cases, but in one case the joint complication lasted as long as 41 days. A noticeable feature of this group showing late joint complications was the complete absence of involvement of the endocardium or pericardium. Dr. Zischinsky lays stress on this point, which in his view differentiates the condition from acute rheumatism occurring with scarlet fever patients. In the differential diagnosis yet another possibility has to be considered—notably that of joint involvement complicating serum sickness when antiscarlatinal serum has been given. In most of the cases described by Dr. Zischinsky the joint symptoms were controlled by the administration of aspirin, although this was not always effective. Certain cases of painful multiple arthritis, accompanied by fever, and of long duration, were particularly intractable.

Despite the absence of the heart involvement, the group of cases described bears a strong resemblance to the type of acute rheumatism common in this country among children. The interval of 12 days or more between the onset of the scarlet fever and the appearance of joint involvement is noteworthy in this connexion. It would be of interest to examine the scarlet fever figures in this country to see if the rheumatic complications would fit into Dr. Zischinsky's classification, and whether the grouping would be in the same proportions.

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[1] Jahrb. f. Kinderh., 1931, cxxxii., 303.

AVERTIN IN AUSTRALIA.

THE personal experiences of an anæsthetist who undergoes an operation under some new form of anæsthesia are always of value as expert testimony. Dr. H. M. Owen [1] relates his views after having had the misfortune to require anæsthesia on five different occasions. He has thus tried, as a patient, ether by the closed method, ether by the open method, the ethyl chloride ether sequence (twice), and avertin and ether. He remarks that "the experience of undergoing induction with and recovery from ether, or ethyl chloride followed by ether, causes a definite amount of hesitation to repeat the experience, if not an actual dread of it." His experiences with avertin followed by a small amount of ether was in connexion with an operation for removal of appendix and cure of an inguinal hernia. He gives a detailed account of his sensations, which were never unpleasant, from the beginning of induction till complete return of consciousness, and he records his opinion that avertin is an ideal anæsthetic for induction purposes and that owing to the small amount of ether used in conjunction with it, as well as to its own properties, it gives such freedom from harmful after-effects, that its use should rapidly become general.

In the same journal Ellen M. Balaam gives a detailed account of 38 cases for which she used avertin. Her practice is to use a larger dose than that generally employed in this country and as she usually precedes it with morphia it is not surprising that in a considerable proportion of cases no inhalation anæsthetic at all is required. Present opinion, however, is that this method of procedure is more risky than the use of avertin solely as a means of procuring comfortable induction without mental stress or excitement. Most anæsthetists do not use any preliminary hypnotics with avertin, regarding it only as an adjunct and in no case as the sole anæsthetic.

PROGRESS IN THE TREATMENT OF DIABETES.

AN analysis by the Metropolitan Life Insurance Company of New York shows a considerable rise in the death-rate from diabetes mellitus in the later age-groups.[2] Dr. E. P. Joslin,[3] in an address to a section of the American Medical Association, explains this rise by pointing to the increase in the population over that age. As the average age at death of the United States population is 44, diabetes will, he suggests, continue to increase—unless preventive measures are taken—until this average age at death reaches the fiftieth year, the leading year for the onset of the disease. In his opinion it is not strange that diabetes has advanced, especially in women at middle age, because obesity, which he regards as an important predisposing factor, is common at the menopause. Despite the statistics, therefore, he claims that the present treatment of diabetes is better than is thought, and that the physician shou [illegible] depart from standard methods. The average patient in 1931 has, he says, already lived half as long again as the average patient in January, 1922, and the average age of patients to-day is 50 as against 42. Moreover, the first year of the illness, from being the most serious, has now become the safest. Joslin quotes figures to show that, whereas the carbohydrate taken in the early days of the Allen era averaged 26 g., it rose, even without insulin, in the latter part of that era to 43 g. and, after the introduction of insulin, reached 71 g. in 1923 and 96 g. in 1927. Insulin has steadily increased it, and the average carbohydrate in representative groups now varies, he says, between 125 g. and 144 g. The protein varies between 3 g. for the young child and 1 g. or 0·6 g. per kg. for adults and nephritics. The fundamental principle of treatment, he says, is the avoidance of overweight, though reduction of weight must be gradual. He is somewhat in favour of a low carbohydrate diet; with high carbohydrate diet he has found reaction to be more common and troublesome, and patients who have lived on the high carbohydrate diet for some years prefer to lower it, sometimes to even 150 g., so that they can have 100 g. of fat. Insulin, he holds, will rectify all the metabolic abnormalities of the diabetic, and every diabetic patient should turn to it if simpler methods fail to satisfy his glycogen needs. He foresees that if Klotz's theory—namely, that insulin may protect the median muscular coat of the blood-vessel—is correct, a profound alteration will take place in the causes of mortality. A generation ago diabetics died of tuberculosis, half a generation ago of coma, and they now die of arterio-sclerosis, but this tendency may pass away with the increasing use of more normal diet. Cancer has tripled as a cause of death in Joslin's own patients.

Joslin holds that the efficacy of treatment should be judged by results on children, and he appeals to the physician to make the diabetic child his teacher. Children, he says, follow their instincts and require great vigilance and understanding, but deserve and need coöperation in the task of learning the tricks of diet, exercise, and insulin. The increased survival-rate of children he regards as one of the most hopeful indications of the improvement in treatment. In the discussion following Dr. Joslin's address, Dr. R. M. Wilder commented on the unusually good health of children who had survived for several years on well-planned diets containing adequate supplies of minerals and vitamins; their teeth, he said, were exceptionally good, their general endurance was remarkable, and they were comparatively free from complicating infectious disease. In a group of 167, none had had symptoms of tuberculosis. In common with Joslin, he notes that arterio-sclerosis does not occur in children treated with insulin from the first.

Diabetes will never be successfully attacked, Joslin thinks, until the patient, his family, the community, the physician, and the hospital are trained in its prevention, treatment, and complications, and have the facilities for treatment within reach. "Wandering diabetic nurses" should, he holds, be available for the general practitioner, for they will not only save his time, but also teach patients to use insulin and diet and to combat coma and gangrene. One such nurse can be endowed for a sum no larger than the endowment of one diabetic bed in hospital. The well-to-do and altruistic diabetic patient might, he suggests, lend his private nurse to a physician for an hour or two a day to teach other diabetic patients; this would be an act of real value, and would save

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[1] Med. Jour. Australia, June 20th, 1931, p. 745.

[2] See THE LANCET, August 15th, p. 364, and August 22nd, p. 436.

[3] Jour. Amer. Med. Assoc., August 29th, p. 595.

had already shown in dogs that good structure could invariably be secured in the teeth by an adequate supply of fat-soluble vitamins, especially vitamin D, and that the amount and character of secondary dentine largely depends on the same factor. Further investigations in a Sheffield hospital showed that children whose diet contained an additional supply of fat-soluble vitamin develop much less caries than children on a standard hospital dietary. The Council therefore decided to undertake an investigation on a large scale, and permission was obtained to work at three residential institutions for children under the Birmingham poor-law authority. These institutions accommodated about 835 children between the ages of 2 and 16 years in a system of cottage homes. It has been found possible to keep about 400 children under continuous observation. The children were divided into groups: to the diet of one group was added a graded and measured ration of cod-liver oil; to that of another a corresponding ration of treacle; to that of a third a corresponding amount of olive oil. Later a fourth group received olive oil with a measured quantity of radiostol. Every child was examined six-monthly and the dental findings carefully charted. The first two years of progress are under review in this interim report. It is as yet too early to answer the question whether the structure and arrangement of teeth is favourably influenced by dietetic measures, but in answer to the question: can the incidence and rate of progress of caries in teeth already developed be lessened by diet? the following answer can be given. The progress of caries in the permanent teeth of the children undergoing this experiment has been significantly retarded in those who received an added ration of fat-soluble vitamins. The increase of caries in the vitamin group was approximately one-third, both in incidence and in extent, of that in the treacle and olive oil groups. The same result applies to the children who received radiostol with olive oil. There was no significant difference between the children who had treacle and those who had olive oil. There is a considerable measure of agreement between these results and those obtained in the Sheffield hospital children and the facts seem to warrant the conclusion that the incidence and rate of progress of caries in fully or nearly calcified teeth can be considerably retarded by the addition of t-soluble vitamins to the normal diet.

MORBID CONDITIONS OF THE VERTEBRAL COLUMN

DURING the last year orthopædic surgeons in ance have been largely concerned with lesions of e vertebral column, especially with those which imulate Pott's disease. In a review of recent orthopædic advances, published in the *Paris Médical* of uly 18th, 1931, A. Mouchet and C. Roederer devote considerable section to the differential diagnosis of hese diseases, of which the most important is the ümmell-Verneuil syndrome. This condition may ccur in young men between the ages of 25 to 45 llowing upon trauma, either direct or indirect, ch as hyperextension or flexion. It has three aracteristic phases, of which the first one consists neuralgic pains along the dorsal or lumbar nerves along those serving the lower limbs; there is ually some motor disturbance, tenderness on essure over the spinous process of the affected rtebra, and muscular spasm, particularly limitation extension. These symptoms vary in severity ccording to the degree of violence of the trauma. The phase lasts from eight to ten days, and is followed by a quiescent period of six to twelve months, during which the patient returns to work. Then, either gradually or suddenly, a kyphosis develops, with a definite prominence over a limited area; the old pains return, the tendon reflexes are exaggerated, and some paræsthesia may be noticed. The general health is never affected, and eventually the symptoms disappear, but the deformity remains. Mr. Roederer notes that attenuated forms of this condition may exist in which the syndrome is incomplete, but generally the clinical picture is so characteristic that there ought to be no difficulty in differentiating this disease from spinal lesions other than caries, with which it is often confused. With regard to its pathology, two schools exist: some regard it as a fracture (Verneuil), others as a peculiar form of a post-traumatic osteoporosis (Kümmell). C. G. Schmorl, of Dresden, is more definite. His view is that the initial trauma produces a crack in the intravertebral surface of a vertebræ; in the course of time the pressure of the intravertebral disc causes this fissure to gape, and herniation of the disc into the spongy tissue results, possibly carrying with it the nucleus pulposus. Pressure-atrophy of the bone necessarily follows, and, at some later date, the vertebra collapses.[1]

Another lesion which may be mistaken for spinal caries is the narrowing of the intervertebral disc associated with muscular spasm. Le Fort and Ingelrans [2] observe that when narrowing of a disc associated with angulation of two vertebræ is seen in a radiogram, Pott's disease is not necessarily the cause. They quote a patient who, ten days after an injury, suffered acute pain in the lower lumbar region and along the course of the right sciatic nerve. A radiogram showed a narrowing of the disc on the left side between the fourth and fifth lumbar vertebræ, so pronounced that the two bones were almost in contact. Both the transverse processes of the fifth lumbar were sacralised, and careful examination showed that the right one was fractured. Its removal completely relieved the symptoms, and the disc returned to its normal shape and size. The sequence of events here would appear to be: fracture of the right transverse process, irritation of the right lumbosacral cord, and spasm of the intrinsic muscles of the opposite (left) side, with consequent compression of the disc on that side. Fort and Ingelrans describe other cases, and suggest the possibility that the narrowing of the disc often seen in the early stages of spinal caries, and hitherto regarded as being a sign of its destruction, may really be due to its compression by muscular spasm. Leriche and Jung [3] concur in this view, and describe two similar cases in which the X ray appearances became absolutely normal within ten minutes after the injection of novocain around the vertebral bodies, and Leriche points out that the disc, consisting as it does of fibrous tissue enmeshing a few cartilage cells, and surrounding the nucleus pulposus, can hardly be regarded as a structure susceptible to infection by the tubercle bacillus.

The nucleus pulposus is now coming to be regarded as a structure with an important influence on the mechanism of the vertebral column.[4] It is the pivot upon which all the movements of one vertebræ on another take place, and may almost be said to convert the flat intervertebral joint into a ball-and-socket joint, where lateral movements, flexion, extension, and rotation occur. Under certain circumstances the nucleus is capable of changing its position, and it is due to this fact that compensatory curves are able to take place and to be maintained, the nucleus being always on the convex side of the curve. It has been suggested that the nucleus may lie back so far as actually to invade the spinal theca and to cause compression symptoms. Hernia of the nucleus is, of course, a well-established condition. Discal and nuclear hernias were first described in 1927 by Schmorl, who found them in as many as 38 per cent. of autopsies. They exist in two forms. Those placed centrally are about the size of a small pea, invade the body of a vertebræ, and are surrounded by an area of sclerosed bone; they may extend along a substantial part of the vertebral column in the line of the notochord, and are due to herniæ of the nucleus pulposus. Those placed eccentrically are varied in shape; they also are limited by an area of sclerosed bone, and are regarded as hernias of the disc itself. In a typical radiogram the discs are irregular in outline, thinned, and may present calcified patches; the anterior parts of the bodies of the vertebræ are flattened and often lipped, while the posterior parts are normal in appearance. This condition is not a disease of the disc any more than hernia of the abdominal wall is a disease. It is simply an anatomical abnormality which predisposes to painful adolescent kyphosis, and later to spondylitis deformans. J. Calvé and M. Galland,[5] from observation of 26 cases of adolescent kyphosis, believe that vertebral epiphysitis is much rarer than it is usually held to be; in their series they were only able to find three genuine cases of epiphysitis. The X ray appearances hitherto taken to indicate this disease are, according to them, only secondary effects of herniation of the nucleus pulposus. Abnormalities of the intervertebral discs obviously deserve more attention from those who are studying the pathology of diseases of the vertebral column, and are likely to receive it in the future.

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[1] Froelich and Mouchet: Revue Orthopédie, 1930, 3rd série, p. 749.

[2] Le Fort and Ingelrans: Ibid., p. 705.

[3] Leriche and Jung: La Presse Médicale, 1930, April 18th.

[4] Galland, M.: La Presse Thermale et Climatique, 1931, April 15th, p. 254.

DYSTOCIA AFTER INTRA-UTERINE RADIATION.

FIBROSIS of the cervix after intra-cervical radiation for cervicitis or carcinoma is not infrequent; many cases have been reported where insuperable obstruction in labour followed its use. It now appears that a similar condition may follow intra-uterine radiation for menorrhagia. While not astonishing, this is somewhat alarming, in view of the frequency with which the treatment is now used in women of child-bearing age, with a view to bringing about temporary sterilisation and the subsequent alleviation of various menstrual irregularities. In a case reported by C. C. Anderson[6] the patient was 35 years of age, and had had four children, the youngest being 3 years old. She was admitted to hospital for severe metrorrhagia of three months' duration, which had not been relieved by curettage. Radium in a dosage of 1080 mg. hours was applied to the uterine cavity on August 4th, 1926, the applicator being screened by 0·5 mm. silver, 1 mm. brass, and 1 mm. rubber; the patient left hospital ten days later. The periods apparently ceased for a time but later recurred, remaining normal until pregnancy ensued in 1929. Labour began at the end of the seventh month, on Jan. 31st, 1930. No fœtal movements had been felt
for 24 hours and the membranes were said to hay
ruptured a week before. A transverse presentatic
was corrected on the next day to left occipito-anterio
A firm cartilaginous band was found at the lov
of the internal os which would not dilate even und
deep anæsthesia. In the end, when the patient ha
become exhausted, Cæsarean section had to be carric
out. The transverse presentation had recurred and
hand and foot were in the vagina, the fœtus beir
dead. At the operation the uterus was found to l
unduly fibrotic, and this abnormality was believ
to account for the onset of premature labour. Wh
re-examined in August, 1930, the patient was well b
had not menstruated again. Dr. Anderson rais
the question whether radium treatment is contr
indicated in women of child-bearing age, but conclud
that pregnancy so rarely occurs after radiation th
a possible fibrosis of the cervix is not sufficient reas
for denying radium to the large number of wom
who would be benefited; but the dosage should l
confined to the minimum that will reduce the path
logical flow to a physiological one. He advises th
when pregnancy does occur, the possibility of failu
of the os to dilate should be borne in mind. Durir
labour vaginal examination should be reduced to
minimum and any undue prolongation of labou
should be regarded as an indication for immedia
Cæsarean section.

SMOKELESS COAL.

THE conference of the National Smoke Abateme
Society, held at Liverpool over last week-end, w
the third of its kind, and notable for the declaratic
of its president, Dr. H. A. Des Vœux, that smoke
simply a luxury of laziness. After dealing faithful
with factory smoke he admitted, however, th
smoke from the domestic chimney will not l
abolished until smokeless fuel is available at a reaso
able price. Mr. Ralph Gibson, on behalf of t
Liverpool Gas Company, replied that the gas industr
could, if it would, produce a smokeless fuel givir
the cheerful effect of coal, and such fuel was in fa
sold by his company. In the past this kind of fu
has not proved commercially profitable, becau
of difficulty in disposal of by-products; but
potential ally of low temperature carbonisation h
now appeared in the so-called hydrogenation proces
If hydrogen is applied under pressure to coal-t
products a high proportion is converted into mot
spirit, and it is understood that at least 100,0
tons of petrol a year are being produced in German
in this way by a single firm. The application
this hydrogenation process to tar oils and creoso
is now being tested by the Government fuel researc
station at Greenwich with, it is believed, a yield
92 per cent. of motor spirit and Diesel oil from lo
temperature crude oil. It is doubtful whether th
semi-coke will completely solve *our domestic smo*
problem if we have to rely on its replacing coal b
virtue of its own merits; probably some form
suasion may be required to prevent the use of smok
coal in domestic grates in cities. Such prohibitio
however, would become a legitimate measure if th
hydrogenation process lives up to its promise.

Mr. E. D. Simon, M.P., has been appoint
Parliamentary Secretary to the Ministry of Health

At the Royal College of Physicians of London
annual Harveian commemoration will be held
Oct. 19th. Dr. Robert Hutchison will deliver t
Harveian Oration at 4 p.m.

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[5] Calvé et Galland: Revue d'Orthopédie, 1930, 3rd série, p. 723.

[6] New Zealand Med. Jour., August, 1931, p. 202.

OPENING OF THE MEDICAL SCHOOLS.

IN connexion with the opening of the session at the London Medical Schools the following arrangements are announced :—

Charing Cross Hospital.—Prizes will be distributed on Friday, Oct. 2nd, at 4 P.M., in the council room by Sir George Newman, principal medical officer of the Ministry of Health, who will give an address. On the following Saturday and Sunday there will be a week-end post-graduate course, admission being restricted to old students of the hospital. On Saturday, at 7.30 for 8 P.M., the annual dinner of past and present students will be held at the Royal Adelaide Galleries, Gatti's Restaurant.

Guy's Hospital.—The winter session will open on Oct. 2nd, at 3 P.M. Sir Farquhar Buzzard will distribute prizes and give an address on the General Medical Council.

King's College Hospital.—The session will open at the Medical School on Oct. 1st, at 2.15 P.M., when an introductory address will be given by Dr. H. R. Dean, professor of pathology in the University of Cambridge. The annual dinner of past and present students will be held the same evening at 7 for 7.30 P.M. at the Connaught Rooms, Mr. L. Vernon Cargill presiding. A series of post-graduate lectures, free to all medical practitioners, is to be given in the Medical School on Thursdays at 9 P.M. from Oct. 8th to Dec. 17th inclusive, and from Jan. 7th to March 17th.

London Hospital.—The annual dinner will be held at the Trocadero Restaurant on Thursday, Oct. 15th, at 7.30 P.M., with Dr. Cecil Wall in the chair. There will be a post-graduate course for former students from Oct. 14th to 17th.

Middlesex Hospital.—The winter session will open in the Queen's Hall, Langham-place, on Oct. 1st, at 3 P.M., when Prof. James McIntosh will deliver the introductory address and Sir John Bland-Sutton will distribute prizes. At 7.30 P.M. on the same day the annual dinner will be held at the Savoy Hotel.

Royal Free Hospital.—Sir John Simon will deliver an inaugural address and present prizes at the London (Royal Free Hospital) School of Medicine for Women on Oct. 1st, at 3 P.M.

St. Bartholomew's Hospital.—The old students' annual dinner will be held in the great hall of the hospital on Oct. 1st at 7 for 7.30 P.M. Sir Percival Hartley will preside.

St. George's Hospital.—Lord Ponsonby will present the prizes and deliver an inaugural address at 3 P.M. on Oct. 1st in the board room. The annual dinner will take place at the Hyde Park Hotel, Knightsbridge, at 7.45 P.M. on the same day.

St. Mary's Hospital.—The dinner of past and present students will be held at the Trocadero Restaurant on Oct. 2nd, at 7 for 7.30 P.M. Sir William Willcox will preside. A week-end post-graduate course, open to all medical practitioners, will be held from Oct. 2nd to 4th in the library of the Medical School.

St. Thomas's Hospital.—The old students' dinner will be held at the May Fair Hotel, Berkeley-street, at 7.30 for 8 P.M. on Oct. 2nd, with Mr. J. Herbert Fisher in the chair.

University College.—The annual dinner of old students will be held at the Hotel Victoria at 7.30 P.M. on Oct. 16th, and the annual dinner of past and present women students of the hospital will be held at the same time at the Piccadilly Hotel. Post-graduate demonstrations for old students will take place on Oct. 15th and 16th.

Westminster Hospital.—An inaugural address will be given in the board room on Oct. 1st at 3 P.M. by Sir Henry Hadow. The annual dinner is to be at the Grosvenor House Hotel, Park-lane, on the same day.

Royal Dental Hospital.—Prizes will be distributed at the hospital on Oct. 2nd at 8 P.M. by Prof. Elliot Smith. The annual clinical At Home will be held on Nov. 21st from 2 P.M., and the dinner of past and present students on the same day at 6.30 for 7 P.M. at the Trocadero Restaurant, with Sir Norman Bennett in the chair.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt.-Comdr. A. G. Bee to be Surg. Comdr.
Surg. Lt. E. T. S. Rudd to be Surg. Lt.-Comdr.
Surg. Comdrs. : J. D. Bangay to *President*, for Medical Depôt, Royal Victoria Yard, Deptford ; C. G. Sprague to *Pembroke*, for Chatham Barracks ; and A. G. Valpy French, to *Vivid*, for Devonport Barracks.

ROYAL NAVAL VOLUNTEER RESERVE.

Lt.-Comdr. J. H. Dundas-Grant to *Repulse.*
Surg. Lts. : W. H. Roberts (proby.) to *Comus* ; and T.G. Evans to *Victory*, for Haslar Hospital.

ROYAL ARMY MEDICAL CORPS.

Lt. (on prob.) G. Herbert resigns his commn.
The undermentioned Lts. (on prob.) are secd. under the provisions of Art. 213, Royal Warrant for Pay and Promotion, 1931 : R. Johnston, G. A. Kane, and J. K. Chappell.
Lt. E. A. Stroud (temp. commn.) to be Capt.

TERRITORIAL ARMY.

Lt. T. A. A. Hunter to be Capt.
Lt. H. Watson to be Capt.

NORTH PERSIAN FORCES MEMORIAL MEDAL.

Dr. T. F. Anderson, Colonial Medical Services, has been awarded the North Persian Forces Memorial Medal for the year 1930 for his paper on a "Report on an Investigation of Health Conditions on Farms in the Trans-Nzoia, with special reference to Malaria," published in the *Kenya and East African Medical Journal*, Vol. VI., No. 10, January, 1930, pages 271–308. The North Persian Forces Memorial Medal is awarded annually for the best paper on tropical medicine or hygiene published in any journal during the preceding 12 months by a medical officer, of under 12 years' service, of the Royal Navy, Royal Army Medical Corps, Royal Air Force, Indian Medical Service, or of the Colonial Medical Service.

The Efficiency Decoration has been conferred upon Maj. John Samuel Hudson.

The Territorial Decoration has been conferred upon Lt.-Col. Josiah Walker.

Col. L. D. Bailey, Assistant Director of Medical Services, 47th (2nd London) Div., T.A., has been appointed Hon. Physician to the King, vice Col. J. G. Martin (ret.).

AYR COUNTY HOSPITAL.—Colonel W. J. R. Houldsworth, chairman of the hospital, recently unveiled a bronze tablet in the lecture hall to the memory of Dr. J. F. McGill Sloan, who was lecturer in surgery to the nurses in training from 1911 until his death in May, 1931. The memorial has been provided at the cost of the nursing staff.

QUEEN CHARLOTTE'S HOSPITAL.—The annual report, after recording the opening of the isolation block on the new site at Hammersmith, points out that for the first time in medical history special facilities will be provided for intensive investigation into the causes of puerperal fever. The number of beds has been increased from 80 to 130, of which 20 are in the auxiliary hospital at Hammersmith, and 30 in the isolation block. There were 2444 in-patients during the year, most of them "booked"; the remainder were "emergency" patients sent to the hospital at the last moment. Of the former, seven died, giving a mortality-rate of 3·2 per 1000; six "emergency" patients died, giving a mortality-rate of 27·6 per 1000. The infant mortality-rates were 22 per 1000 in "booked" cases, whereas in the "emergency" cases the rate was 96 per 1000. Each in-patient cost £9 10s. 11*d.* The new out-patients attended at home numbered 1771 (31,000 attendances). The income was only £23,101 and the expenditure £20,832, a disparity which is causing the committee great anxiety.

SPECIAL ARTICLES

ECONOMY IN THE SOCIAL SERVICES.

REPRESENTATIVE VIEWS.

LAST week we were able to give the views of two medical administrators on the principles of reasonable economy in the Social Services. This week we give a further sample embodying the mature experience of public health workers in a variety of responsible positions.

III.

I have never been an officer of a local government authority, but I have been for many years a member of such an authority with special interest in the departments of public health (including mental deficiency and maternity and infant welfare) and of education. My experience of the way in which members of such authorities, individually and collectively, react to the call for economy is therefore fairly extensive, and I realise that there are grave dangers in the present situation. There are only too many aldermen and councillors who are ready to retrench without discrimination, and to seize any excuse or opportunity for such retrenchment. I am sure that there will be many places in which serious and enduring harm will be done by a misuse of Circular 1222, and many other places in which it will require much effort on the part of the wiser members of local authorities to prevent such harm. Nevertheless, the process of pruning, wisely performed, may, in most cases, still be a beneficial one.

The hint given in the Circular that the careful scrutiny of the whole field of expenditure should be conducted by a special committee containing a few members who are not members of the authority itself, and who therefore are not subject to electoral pressure, but have expert knowledge of their special spheres, is a wise one; though I fear that prejudice in most authorities will prevent its adoption. There is much unwise expenditure now going on under the head both of education and of public health, though, speaking generally, I think that investigation would show that the unwisdom of particular items is more prevalent in the case of those authorities who have a low expenditure per head of population than in those who have a high one. In the matter of education, I would say only that one of the most valuable pieces of health work in any area may be the instruction in personal and domestic hygiene, practical as well as theoretical, which is given by the teachers in the public elementary schools, and that this can in any case be continued or extended without involving any special expenditure.

On the specifically public health side, one of the first items that will come under review will be the salaries of the staff. Here it should be remembered that a memorandum embodying a scale of salaries has been recently adopted, after negotiations presided over by an independent chairman, by representatives of the medical profession and by those of local authorities. This scale is not binding on every authority, but most authorities, loyal to their negotiators, have, in fact, adopted it formally or informally. Where it is now proposed that a uniform percentage shall be deducted from the salaries of the medical staffs it seems clear that this may wisely be accepted in the emergency by those whose authorities have adopted the scale, but there is a strong case for protest and local arrangement where the authority is already paying its staff salaries well below the agreed scale. Reductions in such cases should not be too readily agreed to.

In some areas, where, for example, clinics have been used largely not merely for giving advice with regard to relatively healthy infants and children, but as places for the treatment of disease and the vending of drugs and articles of food at prices below cost, there is room for the cutting off of the expenditure involved in such misuse, and in some cases for the reduction of the staff which this has necessitated. The use of clinics for their legitimate purpose need not thereby be interfered with. In connexion with maternity services there are large numbers of districts which have done very well in making sufficient provision, but there are even more places in which such provision is woefully deficient, and it would be a disaster to call any halt in these latter authorities.

The ascertainment and supervision of mental defectives is a matter of great national importance, and is at present very badly done, except in a few areas. This should proceed with all vigour, and it is not expensive, but it is to be feared that the provision of special schools or departments, and of colonies for the care of such persons, will necessarily have to be stopped, just at the moment when a great many local authorities were beginning to realise their duties in this regard. In general, it may be said that while expansions of public health work which involve the establishment of fresh institutions and of fresh building will probably have to be held over, savings to the requisite amount may well be made by a restriction of public health services to their strict functions and by a real sacrifice in personal remuneration from those whom authorities are now paying on a scale recognised as just by an independent judge. From others such a sacrifice should not be exacted: they are already undergoing it.

IV.

Economy is a hard word. It is used with great glibness these days by many who have no clear conception of its meaning and implications as applied to the social services, particularly those relating to the public health. Among local authorities there is great variation, both in the manner of spending money and the objects on which it is spent. Some spend lavishly on one section of the service, say tuberculosis; others on another, say hospitals. But whatever the favoured section, the point to be borne in mind is that the local authority has committed itself to a certain expenditure, from which it cannot escape except by way of repudiation either of the whole or of part of its obligations. The latter it might do without seriously compromising efficiency; the former would involve total destruction of the particular service—an eventuality which no *local authority* could possibly contemplate.

How then can economies be effected? The first and obvious way is by coördinating the various sections of public health activity; the school medical and maternity and child welfare services, for example, might be more completely fused than they are at present, and these again might be linked up with the public assistance and mental deficiency services to the advantage of all four. The tendency to multiply centres, clinics, and personnel requires to be curbed.

and integration substituted for disintegration. To have school clinics and infant clinics held in different buildings, each clinic with its own staff of nurses and doctors, is wasteful in the extreme, and the same may be said of children's homes and hospitals under the maternity and child welfare and public assistance committees.

One central dental clinic might serve a large urban area, and even in scattered rural districts, with the excellent bus services now in being, the number of such clinics now existing might be reduced. Such expensive equipment as X ray plant and artificial sunlight apparatus might with advantage be centralised in one building and used by more than one branch of the service. Vaccination officers might be dispensed with entirely, and their place taken by health visitors. Though such a change would entail the payment of a considerable sum of money to the displaced officers as compensation for loss of office, the outlay would not recur, and in the long run money would be saved.

More efficient almoning of all the services would undoubtedly result in increased income, and materially reduce the balance on the debit side of the account. At present many who could quite well pay a little receive benefits for which they pay nothing. There might be a drastic curtailment of the amount of milk, food, drugs, and dressings distributed gratis to the public. This applies as much to voluntary hospitals and institutions as to the public services.

I agree with the suggestion that the cost of administering infectious diseases might be considerably reduced by cutting out the disinfection of premises in all but the most obvious cases—e.g., verminous households; by discouraging the removal of mild cases of scarlet fever to hospital from homes where there are ample facilities for proper isolation and nursing; and by the distribution to practitioners of prophylactic serum. It is a pity that medical practitioners are so slow in making use of the facilities now offered by many local authorities for the immunisation of children against diphtheria. If only they could be induced to give the effort to build up an immune population their support and backing, the cost in the upkeep of expensive fever hospitals might be halved. Drain testing and flushing are not the big items nowadays they once were. Still the fetish remains in certain places, and has to be paid for. The practice might be entirely eliminated, except perhaps in a few special instances.

Fever hospitals and sanatoria are not generally over-staffed—the opposite is as often as not the case—but the staff is not always used as economically as it might be. By a better grouping of the wards one sister might take charge of a block instead of, as frequently happens, one ward only.

The dispensing and compounding of medicines take up a lot of time and sometimes entail the employment of special staff, where, if discretion and foresight were used, the work could probably be done quite as well by an untrained person or contracted for by an outside firm of druggists. I am now speaking of institutions devoted to special rather than to general work—places such as fever hospitals, sanatoria, and the like. Buying in bulk, through a central purchasing department, of all hospital stores and equipment, instead of, as at present, each institution making its own arrangements for the supplies it requires, would effect a substantial saving.

These are economies which would not detract from efficiency. Nor would they arrest or retard development when the time for this becomes opportune.

V.

Circumstances are such to-day that we must review all social services, not so much because of the financial depression, but because the time has arrived to consider what is essential and what non-essential. Does public health take prior claim over education, must the one be cut in order to maintain the other? Is the upkeep of roads, recreation grounds, fire brigades, public libraries, to be maintained at the expense of the public health and educational services? If the individual is to be dependent upon his own resources for the maintenance of health must he not make his own defence against fire?

There is a risk of the undue cutting of the public health service, because there is no return in hard cash. However much we may dislike it, we must cut our clothes according to the cloth. For some years past the health services have been extending into the treatment of established disease, shelving in some measure the maintenance of physiological health. The former is popular, the latter is fundamental; yet the Local Government Act of 1929 in putting the poor-law services under the county and county borough councils extended still further the *treatment* of disease by *health* authorities. The resolve to have a health service and not a disease service would indicate the direction for economising. Our fundamental is the protection of the public against communal disease, not the treatment of the diseased individual. If it is agreed that it is not the duty of the local health authority to treat the individual at the expense of the community, local authorities can cease to remove tonsils and adenoids and to treat minor ailments, leaving such things to the private practitioner or to the hospitals.

Most of us have, I think, administered our services to the utmost economy, and it surprises me to read in your last issue that two at least of my colleagues are suggesting that their services have been administered extravagantly, and that economies can be carried out without change in those services. No, to me the matter is more fundamental, and a change in the public health service must come. The Local Government Act, 1929, is in practice not economical but extravagant. The more local government is divorced from the locality of operation the more extravagant it becomes; government by county councils leads to the development of county staffs to supervise district staffs. The authority that raises the money should administer the spending of it.

The times demand not so much a superficial pruning in the social services, but the establishment of the fundamentals that make for physiological health. In the words of "Iolanthe"—

> Fold your flapping wings,
> Soaring Legislature.
> Stoop to little things;
> Stoop to Human Nature.

VI.

Many health departments have been parsimoniously treated in the past. Gas and electricity departments, public transport have been supplied with all they needed in up-to-date plant and buildings, because they are potential sources of revenue; public health has been looked upon as a spending department of doubtful utility. There is a risk that the economy campaign will result in some health department staffs having to remain in insanitary offices (for the health officer usually has the worst offices in the municipal service); while many infant welfare centres, established experimentally years ago in makeshift premises and now due for transfer to properly designed buildings, will permanently remain in their present inconvenient quarters.

In few places have the health services been provided with funds in excess of the minimal requirements for efficiency, and few reductions of expenditure can be made with safety. These remarks are not made in a spirit of antagonism to true economy, and I agree with the suggestion to save money and labour by cutting out the free milk arrangements from the infant welfare scheme. Let the very poor be referred to public assistance, and let our infant welfare centres remain as educational institutions only. In places in which the inspectors of meat and other foods have had put upon them duties under the Merchandise Marks Acts and the Agricultural Produce (Marking and Grading) Act these duties should now be dropped, for there is no public health function involved. The saving would be slight, but the need for increase of staff would be postponed.

For the next few years annual reports might be reduced to skeleton form and not circulated so widely about the country as at present; informative summaries are usually available in the medical journals A check might be put upon the so-called health education, some of which is costly and of doubtful value. Finally, in most activities we must be content to make progress by tuning up the internal working of the machinery rather than by adding to its size; we must make sure our four cylinders are working well, and defer the purchase of a six-cylinder.

VII.

The two contributions which appeared under this heading last week indicate that considerable advantages should accrue from overhauling the housekeeping. The acid test of expenditure should be whether it is a paying proposition either immediately or in the future. Many schemes are launched in fits of enthusiasm, and are kept going by their own momentum—which means by vested interests or the dislike of dismissing officials—after they have been found not to be socially economical. We must now face conscientiously the rectitude of expenditure.

Personally, I am none too sure about the economic value of prenatal care, although it may be heresy to say so. Infant welfare, on the contrary, calls for ever-increasing activity. But are we quite sure about all the tonsil and adenoid operations? The removal of infected tissue is needed; but is every visible tonsil infected? Attention has already been directed to out-of-date house "disinfection," and drain testing. Let us scrap such routine absurdities.

I welcome the campaign against tuberculosis in so far as it effects isolation or segregation of infectious cases in sanatoria. But evidence is far to seek that in the long run "early" cases treated do any better or worse than untreated cases. Are we quite sure we can justify the expenditure on the campaign? We continue to spend large sums annually in treating bovine tuberculosis in human beings. Why do we not ascertain the total spent, and see whether it would not be enough once and for all to clear tuberculosis from the cattle of these islands? Then we should save these annual sums.

The opinion of a port medical officer on the scientific soundness of quarantine as practised to-day would be of interest. The present economy campaign affords a unique opportunity for bringing the practice of public health up to date.

VIII.

Although the need for economy is so great I find grave difficulties in naming any particular branch of the school medical service in which economy on a large scale could with justice be recommended. Money wisely spent to benefit the health of the children is in itself an economy. But some curtailment of expenditure could be brought about by limiting the number of visits to homes, by avoiding waste in clinics, and by economy in clerical work. Routine inspections should be limited to the three statutory periods of the child's school life. Treatment, especially in county districts, should be transferred to the public health committee. Some of the older schools which are due for replacement will have to be given a new lease of life, and there must be a stay, for the present, in the provision of new special schools, or the extension of existing ones. Care must be taken in the selection of children in need of convalescent treatment; only those who cannot be dealt with at home can be sent away.

Lastly, the money available should be expended on children who can receive benefit and are likely to become useful members of society. There can be no excuse for spending large sums on the mentally defective at the expense of the normal, other than with a view to the prevention of procreation and crime.

MEDICINE AND THE LAW.

Official Records and Professional Secrecy.

IN a recent case at the Old Bailey a detective-sergeant had occasion to state what was known about the accused, who had been an officer in the Army. He informed the Court that the accused had been awarded the D.S.O. in 1916 and in March, 1920, had been placed on half-pay owing to ill-health caused by a wound. He said he had been unable to discover from the War Office what the nature of the wound was. The Recorder (Sir Ernest Wild, K.C.) is then reported to have spoken as follows: "Do you mean to say that if a judge wants to know from the War Office what wounds a man has received they will not tell him? If that is so, it should be looked into. If I thought it mattered, I would have the War Office here. See that a communication is sent to the War Office to the effect that assistance should be given in these cases, and not hindrance. Any time a public department refuses information, please apply to the Court and have them subpœnaed to attend to explain their conduct." Subsequently, it appears, the Recorder ordered a subpœna to be served upon the War Office.

Everybody appreciates the humanity of our criminal administration and the patient persistence of judges in discovering whatever may be in favour of an accused person. If any fact is likely to lead either to acquittal or to mitigation of sentence, an accused person may perhaps be assumed to assent to its disclosure. But if such facts relate to a person's diseases or injuries, we trust it will not be taken for granted that any public authority is able to demand the information without question. The medical profession's tradition of secrecy is one of several matters which courts of law refuse to recognise, but which, nevertheless, exist. The duty of secrecy is not abrogated merely because the information is to be found in official records. A man who enters the Army or any other similar public service has just as much right to medical privilege as anybody else. If this were not true, his medical treatment would be at a disadvantage. Official records are not necessarily public records. Indeed the very existence of extensive official records, as in the case of patients treated under the national health insurance system, makes it proper to take special care that patients can have confidence in non-disclosure. Men and women suffer many disabilities which they do not desire to be broadcast to the world. There is no reason to suppose that officers of the Royal Army Medical Corps are more willing to disclose their patients' confidences than any other members of the medical profession. If, therefore, the War Office was slow to communicate the nature of an ex-officer's injuries there may be more to be said in favour of its hesitation than the Recorder's recent criticisms would appear to concede.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

SCIENTIFIC DISCOVERIES: INTERNATIONAL PUBLICITY.

Dr. L. Rouquès ventilates this problem in the *Presse Médicale* for Sept. 9th, and discusses the proposals made this year in Italy by Prof. E. Levi. The latter takes as his text the discovery, by W. W. Swingle and J. J. Pfiffner, of a new cortico-suprarenal hormone. Working with this substance, L. G. Rowntree and C. G. Greene[1] have shown it to have an action on Addison's disease comparable with that of insulin on diabetes. But a year after Swingle and Pfiffner's work was published, it was still, says Levi, almost unknown, although it promised to save the lives of some 500 to 1000 people every year. In Levi's view the spread of knowledge is delayed by two principal factors. In the first place there may be material difficulties in preparing the remedies and obstacles in the way of quickly collecting enough patients for controlled observation. Secondly, there is the lack of a central international journal enjoying an unquestioned scientific reputation. Levi would like to see a scientific discovery submitted to an authoritative group of experts in the discoverer's country. If they approved, they would transmit it to a central international journal in which it would be published. The international bodies mentioned in this connexion are the Health Section of the League of Nations, the Office International d'Hygiène Publique, and the League of Red Cross Societies. Rouquès is sufficiently interested in this project to discuss it at some length, but he ends by gently pouring tepid water on it.

CONFERENCE ON THE RAT.

On Oct. 7th an international conference on the rat will be held in Paris in connexion with the Colonial Exhibition. This date has been chosen so that the conference may coincide with the autumn session of the Office International d'Hygiène Publique, the delegates to which will be invited to take part in the conference. Between Oct. 7th and 12th there will also be a French colonial congress on the rat and plague, connected, like the international conference, with the Colonial Exhibition. Would-be participants in these meetings should communicate with Prof. Gabriel Petit, 84 bis, rue de Picpus, Paris, XII.

CENTENARY OF FOURNIER.

The syphilographer, Alfred Fournier, was born in Paris on May 12th, 1832, and he died on Dec. 25th, 1914. The centenary of his birth is to be celebrated next year with an international conference on syphilis, from May 9th to 12th. Preparations for this conference are proceeding apace, and the International Union Against Venereal Disease has chosen as one of the principal speakers Mrs. Neville Rolfe, secretary-general of the British Social Hygiene Council. Other speakers will be Prof. Jadassohn, of Berlin, Prof. Wagner von Jauregg, of Vienna, Prof. Nicolau, of Bucarest, and Dr. Cavaillon, of Paris.

DEATH OF DR. CHARLES DUJARIER.

One of the most striking and forceful personalities in the French world of surgery has passed away with Dr. Dujarier, who was born in Paris in 1870. He came under the stimulating influence of Nélaton, Tuffier, and Terrier, and for years he was best known as an anatomist, his book on the anatomy of the limbs being a standard work for several successive classes of medical students. Later, at the Boucicault and the Hôtel-Dieu, he made his reputation as a surgeon, specialising in fractures and the surgery of the bones. Instead of taking a few weeks' holiday before undergoing an operation, he continued to operate himself till the day before his own operation.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

HOSPITAL SWEEPSTAKES.

It is reported that Mercer's Hospital, following in the steps of the Rotunda Hospital, has made application to be given a share in the profits of the hospital sweepstakes. The next "sweep" will be held on the Manchester November Handicap, but it is understood that both the hospitals named are too late to share in it, and cannot hope to come in earlier than for a share in the Grand National Sweepstake. With the addition of Mercer's Hospital to those already sharing in the sweepstakes, it would seem that all the general clinical hospitals in Dublin which are eligible are looking to the sweepstakes as a means of support. The managements of the hospitals which have recently joined had, it is understood, little liking for this means of making money, and they have joined from necessity rather than choice. It is not merely that they saw other hospitals receiving sums of money beyond their utmost hopes, but that all other means of support appeared to be vanishing. The success of the sweepstakes, as a means of making money, has rapidly caused a drying-up of the streams of voluntary contributions, and there is much reason to fear that the voluntary principle has become obsolete. Many are asking how its place is to be taken. Sweepstakes can hardly be regarded as more than a temporary method of raising funds, and when they cease the hospitals are likely to be left with greatly increased commitments, and little or no income from voluntary contributions. The community, however, cannot do without hospitals, and probability points to the ultimate necessity of the State taking over responsibility for their upkeep. Whether State support will carry with it complete State control or merely a measure of State supervision remains to be seen.

NATIONAL LYING-IN HOSPITAL, DUBLIN.

Dr. John F. Cunningham has been appointed Master of the National Lying-in Hospital, Dublin, in succession to Dr. P. T. McArdle. Dr. Cunningham is a graduate of the National University of Ireland, and a member of the Royal College of Physicians of Ireland. He has been for some years assistant gynæcologist to St. Vincent's Hospital, Dublin.

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[1] See THE LANCET, 1931, i., 652; July 11th, p. 84.

PUBLIC HEALTH SERVICES

MEASLES IN LONDON.

MEASLES breaks out in London every alternate year, usually late in the autumn, and takes six or seven months to complete the circuit of the city. This biennial recurrence is now well recognised, and another outbreak is due this winter. The London County Council has now published a review[1] of the 1929–30 epidemic, in the hope of assisting preventive work. Despite much propaganda, the public persists in believing that measles is a mild disease which can be safely treated by the mother—a belief fraught with very serious consequences. In the last epidemic the greatest incidence was in the age-group 4–5 and the fatalities were mostly among children under 2. The deaths occur almost entirely from complications arising before or soon after admission to hospital. The aim of the Council is therefore to educate the public, to secure prompt information of cases as they occur, and to obviate complications as far as possible. While compulsory notification has its adherents and is in force in two boroughs, this method has not so far met the needs of London as a whole, and the Council's policy is directed to using to the full the resources of school organisation; head teachers are required to report daily to the appropriate medical officers particulars of all cases of measles among their pupils. It will probably never be practicable, even if desirable, to send most cases of measles to hospital, and great stress must therefore be laid on the provision of an adequate service of home nursing. It is realised now that school closure is of little value, as it is almost invariably applied only when measles has a firm hold on the school. Seeking for some more effective means of limiting the spread among school-children, Dr. Kerr instituted a thorough inquiry into measles in the area of Woolwich. His general conclusions were that the disease spreads chiefly in children under 5, except in better-class districts where the younger ones are protected until they go to school; that it spreads whenever a school accumulates unprotected children to the extent of between 30 and 40 per cent. and continues until the proportion is reduced to between 15 and 20 per cent.; that accurate knowledge is required to deal efficiently with the disease and the "measles history" of every child should be taken on admission; that school closure is useless unless it is effected before the "first crop" falls; that two enormously important means of arresting spread are sanitary buildings and trained teachers; that death is often the result of parental ignorance; that the disease never spreads in senior departments; and that second attacks are so rare as to be negligible. The Woolwich inquiry marked the commencement of an epoch in dealing with measles in schools, as it laid the foundations of a system of control based on the exclusion of unprotected children from classes affected by measles. Even this measure was, however, found inadequate to check an epidemic, and efforts were therefore focused on the attempt to reduce mortality. The present method of dealing with measles includes daily visitation by school nurses during epidemic periods, examination of all children under 5, and exclusion and report of all suspicious cases. Leaflets containing advice to parents are distributed by the school organisation, and ailing children are visited every few days to see if measles has developed. Harmonious coöperation between the school nurse and the borough health visitor is of the first importance. An inquiry among medical officers of health showed that on the whole they were satisfied with the present scheme. Little progress has been made so far in the application of serum treatment, partly owing to the difficulty of obtaining convalescent donors, but experience has shown that excellent results follow the injection of 15 c.cm. of a parent's whole blood, and this method is to be tried prophylactically during the next epidemic. The report expresses the hope that concerted measures will be taken to augment the supply of serum, as there is no doubt that it possesses great potential value in the reduction of infant mortality.

Summarising the measures which the report urges for the anticipation of this winter's outbreak, the principles are: that every effort should be made to postpone the contraction of the disease, for the younger the child the greater the risk; that the most important means of preventing complications and death are adequate medical nursing and hygienic care; and that special methods of control must be applied to prevent or ameliorate the disease in under-nourished children living under unfavourable conditions, for in them it is particularly fatal. Since efforts to prevent the disease have all failed, owing to its high degree of infectivity by droplets in the pre-eruptive stage, the most effective measures in dealing with an epidemic are: the provision of increased temporary personnel—medical, nursing, and clerical—during the epidemic; the coöperation of agencies able to help in meeting the emergency; the visitation and instruction of families of reported cases and their contacts within 24 hours; the discovery, visitation, and instruction of families of non-reported cases and their contacts; the instruction of families in which there are young children in the neighbourhood of reported or discovered cases; the provision of medical and nursing care and material assistance to the necessitous; the investigation of the causes of death; education of the public; maintenance of a supply of convalescent serum; prompt isolation at home or immediate removal to hospital; prompt report of every case—best effected by coöperation between health visitors, teachers, and school nurses; and careful advice to the mother who is nursing her chil on how to prevent complications and take the bes care of the patient.

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[1] L.C.C. Public Health Dept., pp. 20.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDE SEPT. 12TH, 1931.

Notifications.—The following cases of infectiou disease were notified during the week: Small-po 19 (last week 63); scarlet fever, 1492; diphtheri 912; enteric fever, 66; pneumonia, 475; puerpera fever, 41; puerperal pyrexia, 100; cerebro-spina fever, 26; *acute poliomyelitis*, 7; acute polio encephalitis, 2; encephalitis lethargica, 8; dysenter 1; ophthalmia neonatorum, 97. No case of cholera plague, or typhus fever was notified during the week

The number of cases in the Infectious Hospitals of th London County Council on Sept. 15th–16th was as follows Small-pox, 43 under treatment, 3 under observation (las week 39 and 5 respectively); scarlet fever, 1091; diphtheria 1345; enteric fever, 15; measles, 99; whooping-cough[1] 357; puerperal fever, 18 (plus 12 babies); encephaliti lethargica, 215; poliomyelitis, 9; "other diseases," 9 At St. Margaret's Hospital there were 18 babies (plus 1 mothers) with ophthalmia neonatorum.

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[1] Last week 380, the number was incorrectly given.

(*Continued at foot of next page.*)

PSYCHIATRIC OUT-PATIENT CLINICS

AT LONDON COUNTY COUNCIL GENERAL HOSPITALS.

THE facilities which exist at the Maudsley Hospital for diagnosis of neurotic and mental illnesses and for the continued treatment of these conditions in its wards and out-patient department have hitherto been less readily available to patients living in the northern districts of London than to those from parts south of the Thames. Initial attendance in the out-patient department has been essential except in the case of patients recommended for admission by recognised consultants in nervous and mental disorders, and records of the source of patients show that the hospital is thought too remote for some. In order to increase accessibility of psychiatric diagnosis and treatment, the London County Council has recently decided to establish psychiatric out-patient clinics at each of three municipal general hospitals north of the river.

The general supervision of the clinics has been assigned to the medical superintendent of the Maudsley Hospital, to whom all correspondence should be addressed. The physician in charge of each clinic will also be drawn from the Maudsley Hospital staff; with the latter, however, will be associated members of the staff of the London County Mental Hospitals. This medical staff will have the assistance for investigation and disposal of specially trained psychiatric social workers recently appointed by the Council.

While the Maudsley Hospital will continue to exercise unchanged all its previous functions in respect of patients living south of the Thames, the three other psychiatric clinics will serve as centres for consultation and selection more easily accessible to patients sent by practitioners in the northern areas. A short report and recommendation as to disposal will be sent to every doctor referring a patient to one of these clinics.

The essential condition of suitability for reference to one of these psychiatric clinics is likelihood of fitness for further treatment on a voluntary basis at the Maudsley Hospital or elsewhere. Among specially suitable conditions may be mentioned (1) neurotic disturbances—e.g., neurasthenia, hysteria, obsessional states, and anxiety states; (2) mental or neurotic symptoms associated with well-defined physical disease. There are special facilities for treatment at the Maudsley Hospital of conditions belonging to both the above classes.

In determining suitability severity of symptoms is perhaps of less importance than prognosis. But no useful purpose will be served by sending to the clinics patients of the following types: (1) Mentally defective patients of any grade; (2) patients clearly requiring certification under the Lunacy Acts. These cases should as hitherto be referred to the relieving officer for admission to the observation ward; (3) non-volitional patients suitable for being dealt with under the temporary treatment clauses of the Mental Treatment Act. These should also be referred to the observation wards.

While all facilities are available at the Maudsley Hospital for study and treatment of the abnormal child, they will not be available at the psychiatric out-patient clinics, and children should not be sent to these.

Patients should be accompanied by a relative or friend capable of furnishing a history and taking all necessary responsibilities. It will greatly facilitate investigation if notice of the forthcoming attendance of any patient is sent in advance to the Medical Superintendent, Maudsley Hospital, Denmark-hill, and as a rule priority will be given to patients in respect of whom such notice has been received.

Below are given the names of the three hospitals at which the new psychiatric clinics are held and of the physicians in charge of each, the times of the bi-weekly sessions and lastly a list of the London boroughs from which patients should be sent to the respective hospitals.

Mile End Hospital: Dr. Aubrey Lewis.	Monday and Thursday. 2.30 P.M.	Stepney, Poplar, City of London, Bethnal Green, Hackney, Stoke Newington.
St. Mary, Islington, Hospital: Dr. Louis Minski.	Tuesday and Friday, 2.30 P.M.	Hampstead, St. Pancras, St. Marylebone, Holborn, Islington, Finsbury, Shoreditch.
St. Charles Hospital: Dr. E. W. Anderson.	Wednesday, 2.30 P.M. Friday, 10 A.M.	Hammersmith, Kensington, Paddington, Fulham, Chelsea, Westminster.

As indicated above, treatment (after the initial interviews necessary for complete diagnosis) will usually, owing to local exigencies of time and space, have to be carried out at the Maudsley Hospital either in its wards or its out-patient department. Plans are under consideration for the expansion of the accommodation of the hospital to the extent likely to be necessary in order to meet increase of demand by the psychiatric clinics mentioned above.

The arrangements for continued out-patient treatment at the Maudsley Hospital have been much improved since the Mental Treatment Act legalised the necessary expenditure. By addition of special out-patient staff, not only has increase in frequency and in length of interviews been rendered feasible, but also continuity of treatment of a given patient by one psychotherapist has been more definitely ensured. All interviews after the preliminary ones are now by appointment at a definite time, and in the case of those in employment such appointments are made after working hours up to 10 P.M.

(Continued from previous page.)

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox or enteric fever, 8 (1) from measles, 3 (1) from scarlet fever, 15 (1) from whooping-cough, 23 (0) from diphtheria, 44 (5) from diarrhœa and enteritis under two years, and 28 (4) from influenza. The figures in parentheses are those for London itself.

Bradford reported 3 deaths from measles, Doncaster, 2; Liverpool and Manchester each reported 3 deaths from whooping-cough, Birmingham and Oldham each 2. Three fatal cases of diphtheria occurred at each of Coventry, Manchester, and Rhondda. Diarrhœa was credited with 7 deaths at Liverpool, 6 at Manchester, 3 each at West Ham, Salford, and Newcastle-on-Tyne.

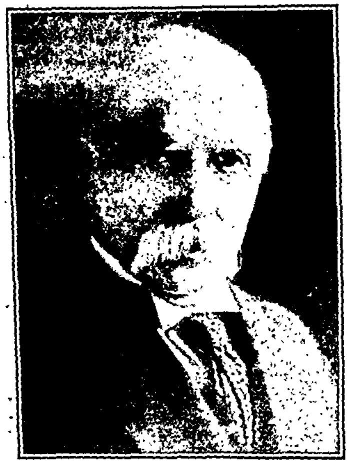
The number of stillbirths notified during the week was 262 (corresponding to a rate of 30 per 1,000 births), including 45 in London.

REMEMBRANCE DAY.—Last year the Poppy Day appeal on Armistice Day produced £524,650, the largest sum yet contributed, and an advance of £5160 upon the total of 1020. The cost of administration is less than 5 per cent.; the cost of making 37,000,000 poppies by 270 severely disabled ex-Service men is about 10 per cent. of the income. Most of the balances are given to the British Legion relief fund.

OBITUARY

SIR WILLIAM SIMPSON, M.D. Aberd., F.R.C.P. Lond., D.P.H.

Sir William Simpson, who died at the Ross Institute on Sunday last at the age of 76 years, will be remembered as one who spent his life in helping to make the tropical parts of the British Empire safe places to live in.



SIR WILLIAM SIMPSON.

[Photograph by Claude Harris

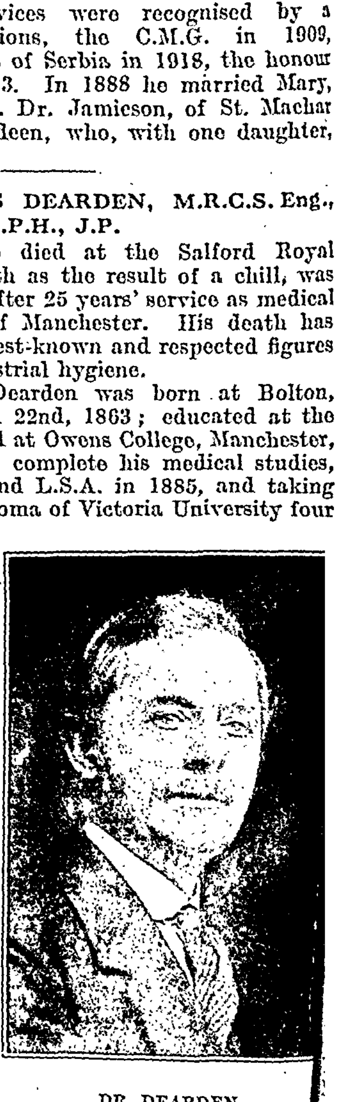
William John Ritchie Simpson was born in Aberdeen, and was sent to school in Jersey, returning to medical study at Aberdeen University, where he qualified in medicine in 1876, taking the M.D. four years later. He had no hesitation in choosing public health as a career, and was at first medical officer of health for his native city, lecturing on hygiene in the University before going out to Calcutta as chief health officer, a position which he held for 12 years. From that time on his life was largely made up of health commissionerships and inquiries. In 1900 he took part in an inquiry into dysentery and enteric fever in South Africa, and in the following year was chief commissioner dealing with the outbreak of plague in Cape Colony. In 1902 he was called on to study the causes and continuance of plague in Hong-Kong. In 1906 he reported on the sanitary condition of Singapore, and in succeeding years investigated health conditions in the West African Colonies, in Uganda and Zanzibar, and in the mining villages of the Gold Coast and Ashanti. During the whole of this period he was lecturing, when time permitted, at King's College, London, where he held the chair of public health in the University of London, and later at the London School of Tropical Medicine. The fruits of his work must be looked for in a multitude of official reports and in the Croonian lectures delivered before the Royal College of Physicians of London, which were based on the need which had gradually impressed his mind of a trained service for the prevention and mitigation of plague in India. He told his hearers quite frankly that if the stupendous disasters of 1907 were not to be surpassed, steps to organise such a service must be promptly taken. Practical measures were always in his mind, as on his return from a survey in West Africa, when he addressed a mixed company of professional and commercial men in Liverpool and told them what the conditions in West Africa might become if public health administrators were given a free hand—a prophecy which has since been realised in large measure.

Simpson was a profuse and diligent writer. When in India he edited the *Indian Medical Gazette*, and later he became responsible for the *Journal of Tropical Medicine*, while a number of treatises on plague and cholera stand to his credit; but no work was nearer his heart than a volume which first appeared in 1908 setting out the principles of hygiene as applied to tropical and subtropical climates and the principles of personal hygiene in them as applied to Europeans. It was the first authoritative work of its kind, and appeared at a time when an ever-increasing number of Europeans were requiring precisely the kind of information with which it was packed. The volume contains his chief claim to the gratitude of posterity.

Not content to take his ease at an age when other men would have given up the strain of administrative work, Simpson voluntarily undertook to become director of tropical hygiene at the Ross Institute at Putney Hill, and physician to the attached hospital. His cumulative services were recognised by a number of distinctions, the C.M.G. in 1909, the Order of St. Sava of Serbia in 1918, the honour of knighthood in 1923. In 1888 he married Mary, daughter of the Rev. Dr. Jamieson, of St. Machar Cathedral, Old Aberdeen, who, with one daughter, survives him.

WILLIAM FRANCIS DEARDEN, M.R.C.S. Eng., D.P.H., J.P.

Dr. Dearden, who died at the Salford Royal Hospital on Sept. 15th as the result of a chill, was almost due to retire after 25 years' service as medical officer to the Port of Manchester. His death has removed one of the best-known and respected figures in the region of industrial hygiene.



DR. DEARDEN.

[Photograph by Lafayette.

William Francis Dearden was born at Bolton, Lancashire, on March 22nd, 1863; educated at the High School there and at Owens College, Manchester, where he went on to complete his medical studies, becoming M.R.C.S. and L.S.A. in 1885, and taking the public health diploma of Victoria University four years later. After spending some time as ship's doctor with the Glen Line, he practised at Crumpsall and Blackley with a strong bias to industrial medicine as certifying factory surgeon and officer to various provident associations. So whole-heartedly did he devote himself to the occupational hazards of the cotton industry that he was appointed by the Royal College of Physicians of London to give the Milroy lectures, wherein he placed on record observations gathered over many years. The year of delivery, 1927, was noteworth for a conference between Home Office officia and cotton associations to discuss the evi of dust in carding rooms and their avoidance. remarkable table of illnesses causing absence f work presented to this conference indicated t extent to which exposure to dust was producing invalidity. Dearden's Milroy lectures and his contributions on the same subject to "Occupation and Health" will long remain as standards of reference. He came to take a leading part in the affairs of the Association of Certifying Factory Surgeons, acting both as secretary and president, and wrote several excellent brochures on the function of a factory medical service. He had much to do with the entrance of numbers of young people into industry, and he laid down for himself as a guiding principle the selection of employment suitable to physical capacity, one in which the individual will have a fair average chance of continuing without undue detriment to himself. He was always keen on improving the system in the direction of securing continuance of employment in the right groove until completion of education in a trade.

Dr. Dearden combined in an unusual degree the abilities of a public officer and the qualities of a man of the world. He had in his earlier days been a member of Manchester city council, and he was a justice of the peace for the city; brought thus into intimate personal contact with public men, he retained amongst them the high esteem which his professional and official services deserved. His work for the British Medical Association further emphasised the many-sidedness of his character. One of his friends writes: "Dearden was first of all a Lancashire man and then a doctor—a fine combination. Whatever he undertook he did with great enthusiasm, and he brought to bear on his duties a power of original observation. He was always seeking for knowledge and for means to put such knowledge to good use. A regular attender at international congresses, the absence of his personality at the recent meeting held in August at Geneva was keenly felt. All who came in touch with him benefited from his vigorous mentality and bowed before the charm of his character."

Dr. Dearden was a member of the Permanent International Committee for the Study of Occupational Diseases, and among other literary work he was assistant editor of the Anglo-American *Journal of Industrial Hygiene*, to which from time to time he made valuable contributions. Witness to the quality of his work as port medical officer is found in his continued care for improved quarters among the barge-men and the frequent condemnation as unfit of quantities of food reaching Manchester by way of the Ship Canal.

He married Annie Rosalie Arden, who survives him with a daughter. They had just returned from Claygate, Surrey, where he was intending to settle on his retirement.

SIR HARRY BALDWIN, C.V.O., M.R.C.S., L.D.S. Eng.

Sir Harry Baldwin, who died at Vannes, in Brittany, last Sunday, was surgeon-dentist to the King from 1918 to 1926, since when he had held honorary rank. The son of George Baldwin, of West Bridgford, Nottinghamshire, he was born in 1862, and received is education at Nottingham High School, the Royal Dental Hospital, and Middlesex Hospital. He took is L.D.S. diploma in 1884, and qualified as M.R.C.S. hree years later. His student career at the Dental Hospital was an unusually successful one, and after ualification he became assistant house surgeon, medical tutor, and eventually dental surgeon there. He set up in practice in Cavendish-square, and numerous papers in dental journals during the next few years testify to his interest in technical problems. He soon attained a considerable eminence in the profession, and occupied numerous official positions. In 1912 he was president of the British Society for the Study of Orthodontics, in 1913 treasurer of the International Dental Conference, and in 1915 president of the Odontological Section of the Royal Society of Medicine. To the medical profession generally he was known, of late years more especially, as an advocate of dietary reform as a means of promoting the growth and preservation of the teeth, and he lent valuable support to the movement in favour of using fresh and "natural" foodstuffs, such as wholemeal bread. Knighted in 1918, he was appointed C.V.O. in 1923. For some years he had been living at St. Helen's, in the Isle of Wight, where he was able to enjoy the yachting, golf, and painting which were his main recreations. He married, in 1914, Lucy, daughter of John Orr White, of Rutherglen, Glasgow, and had one daughter.

SAMUEL RUTHERFORD MACPHAIL, M.D. Edin.

AFTER a long illness Dr. Rutherford Macphail has died at Edinburgh at the age of 74. Son of the Rev. John Macphail, he was born at Isle Ornsay, Skye, and educated at Stewart's College and the University of Edinburgh. Graduating in 1878 he undertook a variety of resident appointments in Greenock, Wolverhampton, Huddersfield, and elsewhere before devoting himself to the mental hospital work in which he finally found his vocation. His first post in this service was at the Cumberland and Westmorland Asylum, where he made clinical observations on the blood of the insane—which won him the prize and medal of the Medico-Psychological Association in 1884. Four years later he became the first medical superintendent of the Derby Mental Hospital and here he remained until after the late war. Thence he went to New Saughton Mental Hospital at Polton, Midlothian, where he was medical superintendent until recently.

Dr. Macphail was well known to the medical profession in Scotland for his association with the Caledonian Society. One of the founders of the Society, he was its secretary and treasurer for many years. At its jubilee celebrations in 1928 he acted with Dr. W. A. Macnaughton as joint president, and the loss of his charming presence and his enthusiasm for Celtic tradition will long be felt. In earlier days he was a notable Rugby forward, and represented Edinburgh University, the West of Scotland, and Liverpool. He married Mary, daughter of G. A. Main, of Carlisle, who survives him with a family of three sons and three daughters.

ROTHERHAM HOSPITAL.—A new out-patients' department has recently been opened. It has cost £20,000, rather more than half of which was provided by the local war memorial fund. Equipment cost a further £2500.

TEMPORARY HOSPITAL APPOINTMENTS.—Walsall public assistance committee reports that there has been great difficulty in filling temporary appointments at its Manor Hospital. It is stated that "there are fewer candidates now qualifying in medicine, and many who are qualifying go into general instead of hospital practice. There are also enough vacancies in teaching hospitals to absorb the remaining candidates, while permanent positions with superannuation rights available in municipal hospitals are attracting newly qualified persons." It has therefore been decided that when the assistant medical officer's appointment expires in December (£200 and emoluments), an assistant of permanent rank shall be appointed at £350 and emoluments.

CORRESPONDENCE

ALBUMINURIA COMPLICATING PREGNANCY.

To the Editor of THE LANCET.

SIR,—Mr. G. F. Gibberd's paper in your issues of Sept. 5th and 12th is both original and stimulating. He appears to be the first among British obstetricians to point out and to emphasise the frequency with which the pregnancy toxæmias give rise to chronic nephritis. The importance of this observation can hardly be overestimated, though it is only fair to mention that pregnancy has long been regarded by physicians as one of the most frequent causes of chronic nephritis in women. It is referred to by Dickenson, for example, in his article on granular kidney in Allbutt and Rolleston's "System of Medicine," 1905. The subject indeed is one of as much interest to the physician as to the obstetrician, and for this reason I venture to make some comments.

Although it is well known that nephritis, both acute and chronic, occurs less often in females than in males at all ages, it is not generally recognised that during the child-bearing age in the female its frequency more nearly approximates to that of the male than at other ages. Undoubtedly this is due to the influence of the pregnancy toxæmias; but not entirely, because the same relative increase in incidence at this age period is also seen in acute nephritis, a condition which is only rarely met with during pregnancy. One infers therefore that not only is pregnancy itself a frequent cause of chronic nephritis, but that, during the period of life in which pregnancy occurs, there is also an undue susceptibility to contract *nephritis*.

Gibberd's conception of "occult nephritis" is very original, and the term will, I am sure, prove useful in other fields of nephrology.

Inasmuch as the treatment of albuminuria of pregnancy is bound up with the question of the prevention of chronic nephritis, a physician may perhaps hereto be allowed to make a few remarks. Gibberd points out that the treatment he advocates "aims primarily at protecting the kidneys against the 'toxæmia,' and has as its basis, rest, protein-free diet, and early induction of labour." The value of rest no one will dispute. The desirability of early induction of labour he has supported by statistical evidence which must be accepted, and in the present state of knowledge (or ignorance) regarding the ætiology of the condition, this procedure seems to be the best practical measure to adopt. The evidence in favour of a protein-free diet, however, does not seem to me to be sufficiently convincing.

The diet advocated by Gibberd is one which is as nearly as possible protein-free, and is given with the object of entailing the least amount of work on the part of the kidney. Now, although he professes to be disappointed with the practical results of biochemistry in elucidating the problems of the toxæmias of pregnancy, he will at least allow that the demonstration of the frequency of the increase in non-protein nitrogen in the blood with increasing severity of the condition—i.e., in the order: simple albuminuria, pre-eclamptic toxæmia, nephritic toxæmia and eclampsia—was achieved by biochemical methods, as also were the proofs that a protein diet causes an increase in basal metabolism and an increased excretion of nitrogen and salts—all arguments used by Gibberd in defending his advocacy of a protein-free diet. This, however, is by the way, because I believe the value of such a diet has not yet been sufficiently proved.

It is now, I think, generally agreed that in the treatment of nephritis, except where there is advanced azotæmia (uræmia), and in the early stages of acute nephritis, no object is gained by diminishing the protein intake below that necessary to maintain nitrogenous equilibrium (say, 1 g. of protein per kg. of body-weight, excluding œdema). In fact it is undesirable to do so. This is the present practice, and it is based on prolonged clinical and biochemical investigations. Further, the renal lesion which is found in the pregnancy toxæmias approximates most closely to that type of renal disease in the non-pregnant known as "nephrosis," in which a comparatively high protein diet is now regarded as essential to replace protein lost by the blood plasma through the kidneys, a state of affairs which also obtains (and incidentally was established by biochemical methods) in the pregnancy toxæmias. I have not sufficient experience in the treatment of the renal complications of pregnancy to assert positively whether or not, and under what conditions, a high or a low protein diet should given, but I should like to know whether from th practical point of view a comparative series on bot types of diets exists, from which conclusions could drawn.

With regard to the advisability of giving glucos I am in complete agreement, but I cannot see th value of either diaphoresis or purgation. As far I am aware, no scientific evidence has ever bee forthcoming that constipation ever causes anythin more than the most transient discomfort which ca usually be overcome by such simple means as liqui paraffin or enemas.

Finally, I cannot refrain from commenting on th remarkable fact that, although the association albuminuria with eclampsia was observed as long ag as 1843 by another Guy's obstetrician, C. W. Leve it was not until 1927 and 1928 when James Youn and Gibberd, working independently in this countr discovered that albuminuria of pregnancy recurred i something like 50 per cent. of cases. The rece of this discovery, which completely alters the v previously held on this subject, affords a stri illustration of the danger of clinical teaching based inadequately controlled clinical observation an handed on parrotwise from generation to gene It also reveals, in my opinion, a grave defect in methods of administration of our much van hospital systems, for with an efficient method record-keeping (which would of course include follow-up department) such a simple and imp fact would not have remained unnoticed for 84 yea

I am, Sir, yours faithfully,

A. ARNOLD OSMAN.

Harley-street, W., Sept. 21st, 1931.

BENDIEN'S WORK ON CANCER.

To the Editor of THE LANCET.

SIR,—In a recent paper[1] with Dr. E. R. Holida we criticised the spectrometric part of Bendi cancer test, showing that the absorption curves the solutions obtained from the sera both of patien with carcinoma and those with various other disea changed on standing from the curve given by Bendi for tuberculosis to that given for cancer. Bu publishing this criticism we made sure that Bendien had taken no precautions to examine his solutions at once or after standing a definite time. We have since found exactly the same change on standing when we used a sample of sodium vanadate given us by Dr. Bendien in place of that purified by ourselves.

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[1] THE LANCET, August 29th, p. 507.

The fact that we used a spectrometric method different to that used by Bendien is of no significance. The extinction coefficients plotted in the absorption curve are physical properties of the solutions, independent of the method of measurement. The method used by Bendien, though older than ours, is sound, and in capable hands should yield the same results. Anyhow the question of methods is beside the point. The change which consists of a disappearance of the absorption in the visible part of the spectrum is visible to the naked eye; the solutions are yellow when freshly prepared and become colourless on standing.

Although our criticism is fatal to the spectrometric part of the test and can easily be confirmed or refuted in a few days by anyone possessing the necessary solutions, no reply has been made. We infer that Bendien's spectrometric work is vitiated by a technical error. As first understood in England,[2] and as would appear from Bendien's book, the spectrometric part of the test is essential for the diagnosis of cancer. If this part is discarded it is necessary to consider the value of the chemical part. It is admitted that the mere appearance of a precipitate in the lower tubes is not specific.[3] It has been suggested that the test may be of value in detecting the appearance of secondaries after the removal of a primary growth, and that elderly persons whose sera do not give precipitates in tubes 6 and 7 are predisposed to cancer.[4] Such a statement as the last could only be of value if supported by abundant statistical evidence; but all that Bendien says is that some of about 60 such cases have subsequently developed cancer. Considering the incidence of cancer in elderly persons this might be expected. From Bendien's book it is not clear how many cases have been examined and in what proportion of these cases the changes described are found; but space is found to enumerate fantastic experiments, in which, for example, vitamin A (nature and amount not specified), tubercle bacilli, and vaccinia vaccine[5] were added directly to sera before testing.

We feel justified in questioning whether there is evidence that any part of Bendien's test gives information of value in connexion with cancer.

We are, Sir, yours faithfully,

F. CAMPBELL SMITH,
JOHN MARRACK.

Hale Clinical Laboratory, London Hospital,
Whitechapel, E., Sept. 19th, 1931.

IRREGULARITIES OF THE TEETH.

To the Editor of THE LANCET.

SIR,—The leading article in your last issue (p. 642) is interesting as well as controversial. After long experience, I still feel convinced of the close relationship between mouth-breathing—brought about by any cause of nasal obstruction—and abnormalities of the jaws and of the position of the teeth in the jaws, two distinct factors which often go together. As regards the latter, regular alignment can be attained by one of two methods: expansion of the jaws or extraction of certain teeth. Sometimes the two methods are necessary. The former is long and tedious, the latter simple, rapid, and permanent, as I can testify from long practice. The subject is too large to dilate upon at any length, but as orthodontic treatment is becoming more called for by the public—Dr. E. H. T. Nash the M.O.H. for Heston and Isleworth U.D. Council has already a large orthodontic clinic as a section of his work—I think it advisable that the profession should be reminded that the time-honoured system I advocate is applicable in many cases. I am, Sir, yours faithfully,

Harley-street, W., Sept. 22nd, 1931. W. RUSHTON.

ALUMINIUM AND HEALTH.

To the Editor of THE LANCET.

SIR,—Although it may be admitted that aluminium cooking vessels are not injurious generally, it is possible that in certain cases their use is distinctly harmful. Some time ago I read a paper by Dr. LeHunte Cooper and, as one of the cases quoted by him somewhat resembled my own, I decided to stop the use of all aluminium in my kitchen. For three years I had suffered from severe abdominal pain, which had been diagnosed by various authorities as malignant disease, chronic appendicitis, duodenal ulcer, spastic colitis, &c. Various forms of dieting and medicinal treatment had failed to give any relief. Within a few days of my stopping the use of aluminium vessels all my pain disappeared, and there has been no return, except on one day, and that was after I had inadvertently taken food cooked in aluminium. Some time later I saw a patient who had had abdominal pain for six months, which had baffled all treatment. Immediately on stopping the use of aluminium vessels his pain completely disappeared. Port wine in general is a valuable stimulant, but if some people drink a wine-glassful they have to pay the penalty, and in like manner I believe that in some cases aluminium is a poison.

I am, Sir, yours faithfully,

London, Sept. 22nd, 1931. ALEXANDER FRANCIS.

A DISCLAIMER.

To the Editor of THE LANCET.

SIR,—In a book reviewed in your columns last week, Dr. C. B. Heald, in referring to treatment by graduated contraction of muscles, electrically provoked, writes: "The credit of introducing muscle movements and re-education is chiefly due to Mr. Rowley Bristow, and the apparatus is therefore often called by his name." As this and similar statements have appeared in various publications, I feel obliged to write and disclaim any responsibility as the introducer or inventor of this method. In a small book, entitled the "Treatment of Muscle and Joint Injuries," which I wrote in 1917, I stated:—

> "A brief account of this method of treatment was published in a paper entitled the Treatment of Muscular and Joint Injuries by Graduated Contraction, in THE LANCET in 1912, by Dr. Morton Smart and myself, and he was the first medical man to systematise and work out the particular method hereinafter described of dealing with both acute and chronic joint injury."

Dr. Morton Smart, in 1923, read a paper at the Electrotherapeutic Section of the Royal Society of Medicine, and gave a demonstration with the new

(*Continued at foot of next page.*)

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[2] Brit. Med. Jour., August 1st, p. 196.

[3] Bendien: Spezifische Veränderungen des Blutserums. Jena: Gustav Fischer, 1931, p. 69.

[4] Ibid., p. 67.

[5] Ibid., p. 21.

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS.

BUDGET RESOLUTIONS.

THE House of Commons was mainly occupied on Tuesday, Wednesday, and Thursday, Sept. 15th to 17th, with the discussions in Committee and on Report of the Budget resolutions. These were finally disposed of on Thursday night, when the House confirmed its approval in principle of the Government's scheme of fresh taxation. Major **ELLIOT** (the Financial Secretary to the Treasury) then brought in the Finance (No. 2) Bill, which was read a first time. Commander **BELLAIRS** presented a Bill on Thursday to amend the Housing (Financial Provisions) Act, 1924, which was read a first time.

PANEL PRACTITIONERS' REMUNERATION.

On Friday, Sept. 18th, the House of Commons went into Committee on the financial resolution authorising the payment of moneys required by reason of the provision of Orders in Council under the Economy Bill.

Mr. **CHAMBERLAIN** (Minister of Health), in moving the resolution, said that of the five services detailed in the schedule to the Economy Bill only two—health insurance and unemployment insurance—were governed by the financial resolution, and only part of those services were affected. The resolution, so far as it affected national health insurance, related to the remuneration of doctors and chemists, and so far as it affected unemployment insurance it related to the proposed increase in the contributions on the part of employers, employees, and the State, and the substitution for borrowing by the Unemployment Insurance Fund of a direct charge upon the Exchequer in the shape of a deficiency grant. The remuneration of doctors and chemists was part of the benefits of the National Insurance Acts, and those benefits were paid for partly by contributions and partly by the Exchequer. The result, therefore, of the proposed reduction was to give back to the Exchequer something which it had already paid out for another purpose. With regard to the doctors and chemists, it was proposed to reduce their remuneration by approximately one-ninth. He wished to pay a tribute of admiration and gratitude to the doctors and chemists for the spirit in which they had received this proposal of the Government. They had stated at once that, treating this deduction from their remuneration, not as a readjustment on its merits, but as a contribution to meet the national needs, they readily agreed to pay their share. (Ministerial cheers.) They had shown a fine example, and the Government were very grateful. The result would be that in a full year the panel doctors would suffer a cut in their remuneration of £850,000, and the chemists a cut of £120,000. The position in regard to unemployment insurance had been going from bad to worse for some time. In June, 1929, the debt was about £37,000,000. Since then the whole cost of transitional benefit, estimated under present conditions at something like £35,000,000 for next year, had been transferred to the Exchequer. The debt at present was £100,750,000, and the borrowing powers were for £115,000,000. The proposal of the Government was that borrowing should cease, and that after the proposed readjustments the deficiency, which was estimated for next year at £22,000,000, should fall upon the Exchequer in the form of a deficiency grant. The finance of the Unemployment Fund was based on an average live register of 3,000,000. There was to be an increase in contributions amounting to £10,000,000. This would cost the State £5,000,000 next year, and was estimated to cost £2,500,000 this year.

Mr. **PETHICK-LAWRENCE** (who was Financial Secretary to the Treasury in the late Government) said that the Opposition offered uncompromising hostility to the unemployment policy of the Government. So far as the agreement which the doctors and the chemists had made with the Government was concerned, the Opposition offered no objection, and those gentlemen ought to be thanked for being willing to make that sacrifice. In the alterations which the Government were making in the rates of contribution for unemployment insurance, the heaviest percentage fell upon the workers. In his opinion, the Government's proposals were part of a general scheme for imposing unequal sacrifices on different sections of the community.

THE FEELING OF THE MEDICAL PROFESSION.

Lieut.-Colonel **FREMANTLE** said that he wished to emphasise the point which the Minister of Health had made in regard to the salaries of panel doctors. He had taken pains to find out what was the actual feeling on the subject in the profession, especially in the British Medical Association, which corresponded to the great mass of the medical men concerned. There were over 15,000 panel doctors—a very material section of the profession. It was interesting to note the line which the panel practitioners took in this matter. They met the Minister early in the month, and discussed the question very frankly. It was shown that the contract made by the doctors originally was a definite one, and binding so far as anything could be binding; and in the ordinary course any alteration asked for by the State would be submitted to a court of arbitration. He understood that the representatives of the medical profession definitely took the line that on this occasion they were called upon to make a cut, a sacrifice on behalf of the country, quite apart from any question of arbitration, on a revision of their terms of employment. But he wished it to be on record that in undertaking to accept without opposition this cut, the doctors did so in view of the national emergency without prejudice to revision in the ordinary way when the time came. The cut proposed in the case of doctors was equivalent to a little over 11 per cent. of their remuneration; but when that was accepted by the representatives of the insurance practitioners it was not realised that there would be an increase in income-tax and petrol duty. (Opposition laughter.) He would not argue about the income-tax at that stage, but the increase in the petrol duty was very serious, bearing specifically on the medical profession, especially in rural areas. But in spite of this there had been no change in the doctors' attitude; they had recognised that they must suffer with the rest of the community. Medical men, and especially panel practitioners, were living on a very narrow margin, and these extra burdens constituted a very serious difficulty and impediment to them in their professional work. It was very serious, because the ordinary doctor lived for his profession in a way that was hardly true of an other class. Therefore their attitude in this mat was of great value to the country. He had not th slightest doubt that the chemists took the sam patriotic and intelligent line. He hoped that th insurance service would not suffer by these proposals

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(*Continued from previous page.*)

coil which he was using. In the subsequent discussion I again disclaimed any connexion with the invention of the coil. I explained that it had been my task to introduce it into the special military hospitals and to demonstrate its effect in the treatment of muscle injury and muscle insufficiency, and that my knowledge of the coil and its working came direct from Dr. Smart.

I am, Sir, yours faithfully,

Sept. 21st, 1931. W. ROWLEY BRISTOW.

he was sure that the doctors would not allow it to do so if they could help it. (Cheers.)

After further debate,

The resolution was agreed to by 219 votes to 155, and reported to the House.

SUSPENSION OF THE GOLD STANDARD.

On Monday, Sept. 21st, both Houses of Parliament passed through all its stages a Bill to suspend the operation of Subsection 2 of Section 1 of the Gold Standard Act, 1925. Mr. Snowden (the Chancellor of the Exchequer), in asking leave to introduce the measure, was opposed by members of the Opposition, who protested against the hurried procedure. Mr. Snowden explained that the Bill suspended the obligation of the Bank of England to sell gold until such time as that obligation was restored by Royal Proclamation; that it indemnified the Bank for refusing to sell gold that day in advance of new legislation; and that it gave the Treasury power during the next six months to make and vary any measures they desired for controlling the exchanges. The right hon. gentleman contended that the formation of the National Government had restored confidence, and the flight from the pound practically stopped. It resumed, however, because there had been no united front in this country, because prominent people had advocated inflation and repudiation, and because the unrest in the Navy had been used for scare purposes. The crisis was then brought about by a scramble among foreign holders of British securities to liquidate their holdings, not so much because of lack of faith in the pound, as from fear of events in their own financial centres. The Government had striven to avert the abandonment of the gold standard, but had failed in face of a world-wide panic in all investment markets. In these circumstances this country must protect itself from a panic which threatened the breakdown of the international credit system. He thought that the suspension of the gold standard in this country, though serious, would be transitory. There was no reason for any serious or prolonged depreciation provided our national finances were sound. There would be no uncontrolled inflation such as had occurred in other countries. He appealed to all parties to form a united front.

Mr. Henderson, speaking for the Opposition, agreed that there was no need for panic, but laid down the condition for the Opposition joining in a united national effort that the Economy Bill proposals should be abandoned and that the Budget should be balanced by other means.

A prolonged debate followed, in the course of which Mr. Stephen, a Left Wing Socialist, moved the rejection of the Bill.

Finally the motion for rejection was defeated, and the Bill was passed and sent to the House of Lords at a late hour, where it received the Royal Assent.

HOUSE OF COMMONS.

WEDNESDAY, SEPT. 16TH.

Safety in Mines.

Mr. T. Smith asked the Secretary for Mines whether it was intended to proceed with the safety conferences initiated by his predecessor.—Mr. Foot (Secretary for Mines) replied: It is certainly my intention to continue the general policy of fostering in all sections of the mining industry discussion on the spread of knowledge on the many problems of safety. Already four conferences have been held at Newcastle-on-Tyne, Glasgow, Sheffield, and Cardiff. It is my desire that conferences on similar lines shall be held in the four other inspection divisions, and arrangements will be made accordingly as soon as conditions make it possible.

Factory Inspectorate.

Major Evans asked the Home Secretary whether he could give the number of additional appointments to the factory inspectorate made in pursuance of the recommendations of the departmental committee; and whether these included any person who did not possess a university degree or other equivalent qualification.—Mr. Stanley replied: Since the committee reported, 40 additional inspectors have been appointed, besides 19 appointed from outside, and 16 inspectors' assistants promoted, to fill vacancies. Of the inspectors appointed from outside, all but two had university degrees or other equivalent qualifications in engineering, industry, or science.

Major Evans: Is not the new procedure a reversal of that instituted at the Home Office many years ago, by which preference was given to persons possessing a practical knowledge of industrial processes?

Mr. Stanley: The hon. Member will be aware that the committee which considered this matter in 1929 was greatly impressed by the need of factory inspectors having a wide range of knowledge and that facilities were suggested by way of scholarships for men of practical experience to obtain university qualifications. I may add that a considerable number of these additional inspectors who have university qualifications have had practical experience in the workshop.

THURSDAY, SEPT. 17TH.

Training of ex-Officers and Nurses.

Major Evans asked the Minister of Labour the number of ex-officers and nurses accepted for training under the royal warrant during 1928, 1929, and 1930.—Sir H. Betterton replied: There have been no acceptances for training under the royal warrant during 1928, 1929, and 1930.

Slum Clearance.

Mr. Albery asked the Minister of Health how many areas had now been cleared under the Housing Act, 1930; and how many houses had been constructed up to date under this Act.—Mr. Chamberlain replied: The returns made to me do not show the number of areas cleared. Up to June 30th last 87 unfit houses in clearance areas and 13 unfit houses in improvement areas had been demolished. Up to August 31st last 278 houses had been completed under the Housing Act, 1930.

Coroners and Reports on Road Accidents.

Mr. Day asked the Home Secretary if he would arrange for a system whereby the circumstances of every fatal road accident in respect of which an inquest was held should be reported by the coroner concerned for the purpose of tabulating the causes of such accidents and the consideration of methods of avoiding them.—Sir H. Samuel replied: It is not necessary to put this duty on coroners. There are other means of obtaining the information. The questions involved are being considered by a departmental committee set up by the late Minister of Transport.

Number of Persons Paying Income-tax.

Miss Lawrence asked the Chancellor of the Exchequer the number of persons entirely relieved from income-tax by the operation of allowances and abatements and the number chargeable with tax before and after the operation of the new regulations.—Mr. Snowden replied: On the existing basis of taxation it is estimated that about 5,250,000 persons come under review for income-tax purposes, of whom about 3,000,000 are entirely relieved by the various allowances, leaving 2,250,000 actually paying tax. It is very difficult to forecast the effect on these numbers of the changes proposed in the Budget, but it is estimated that the effect will be to increase the numbers actually paying tax by between 1,500,000 and 2,000,000 persons.

Rent Restriction Acts.

Sir Charles Trevelyan asked the Minister of Health whether it was the intention of the Government to continue the Rent Restriction Act by means of another Expiring Laws Continuance Act or to initiate fresh legislation; and, if the latter, whether the proposals they would introduce would follow the recommendations of the recent Committee on Rent Restriction.—Mr. Chamberlain replied: It is proposed to extend the existing Acts by means of the Expiring Laws Continuance Act.

Milk for Necessitous Mothers.

Dr. Phillips asked the Minister of Health whether, in view of the proposed reductions in the amount of unemployment benefit, he would advise local authorities to extend the provision now made by them for supplying milk to necessitous mothers and children.—Mr. Chamberlain replied: I do not think it is necessary for me to address any special communication to local authorities on this subject. The extension of this service is now a matter within the discretion of these authorities, and in considering the question they will no doubt pay regard to such circumstances as are mentioned in Circular 1222, and in particular to the question whether an extension of the service is required on urgent grounds of public health.

Dr. Phillips: Does not the circular to which the right hon. gentleman refers urge not extensions but economies in this service, and in that case would the local authorities not take it to mean that they are advised against extensions, and that they ought not to think of making them unless they are told that they will be considered suitable exceptions?

Mr. Chamberlain: No, I do not think that that would be a fair interpretation of the circular.

Maternity Services and Economy.

Dr. Phillips asked the Minister of Health whether Circular 1222, issued on Sept. 11th, 1931, urging local authorities to make further economies in their work, was to be taken by them as superseding the circular issued in December, 1930, urging them to extend their work for the saving of maternal and infant life.—Mr. Chamberlain replied: The answer is in the negative. The view of the Government, as stated in Circular 1222, is that local authorities, in considering whether development of any services cannot safely and properly be slowed down till better times, should pay special regard, inter alia, to the question whether a service is required on urgent grounds of public health. It will be for each local authority to consider, by reference to the relevant circumstances of its area and to the stage of development already reached, whether further development of its maternity services is required at the present time.

Dr. Phillips: Does the right hon. gentleman propose to carry out the intention of his predecessor in inquiring from those authorities who have not yet answered this circular what they intend to do; and whether it is not more likely that after the second circular they will drop the matter altogether?

Mr. Chamberlain: I cannot answer as to what the intention may be.

Miss Wilkinson: In view of the fact that the last published returns of maternal mortality show the lowest figure yet reached in this country, will the right hon. gentleman call the attention of the local authorities to the advisability of maintaining that record?

Mr. Chamberlain: The circular was issued by my predecessor as lately as December of last year. I have no reason to suppose that the local authorities are not giving their close attention to the subject.

Miss Wilkinson: Does the right hon. gentleman's answer mean that he desires local authorities to make no change in the policy that was being pursued under the circular to which he refers?

Mr. Chamberlain: There is no change in the policy.

Mr. Thomas Lewis asked the Minister of Health whether, having regard to the number of preventable deaths of mothers during childbirth, it was the intention of the Government to proceed with the scheme for the development of the maternity service now before the Ministry of Health.—Mr. Chamberlain replied: I assume that the hon. Member is referring to the maternity scheme which was considered by the Committee on National Expenditure. That scheme could not in any event be brought into effect for a considerable period. In the circumstances progress will have, in the immediate future, to depend on the development of the maternity services to which I have referred in the answer given to the hon. Member for Sunderland.

Prolongation of Health Insurance.

Mr. Thomas Lewis asked the Minister of Health if he proposed to bring in legislation extending the provisions of the National Health Insurance (Prolongation of Insurance) Act, 1930; and, if not, what other steps he proposed to take to meet the position of unemployed persons who would normally go out of insurance on Dec. 31st, 1931.—Mr. Chamberlain replied: The matter is under consideration, but I am not yet in a position to make a statement as to the steps which will be taken.

MONDAY, SEPT. 21ST.

Factory and Workshop Inspection.

Major Evans asked the Home Secretary whether he could furnish the number of factories and workshops not visited for one, two, or three years up to December, 1930.—Sir Herbert Samuel gave the following figures:—

	Registered at end of 1930.	Not visited 1930.	Not visited 1930 or 1929.
Factories	154,102	36,169	4,304
Workshops ..	103,371	49,401	20,119

Figures are not available for the numbers not visited in 1928, 1929, or 1930.

Manufacture of Narcotic Drugs.

Mr. Campbell asked the Home Secretary whether any report had been received from the British delegate to the international conference recently held at Geneva in reference to the limitation of the manufacture of narcotic drugs; and whether the scheme advocated by him and by the advisory opium committee for apportioning quotas of the world's requirements of such drugs among the producing countries was adopted by the conference.—Mr. Oliver Stanley (Under Secretary for the Home Office) replied: Yes, sir, the British delegate has informed His Majesty's Government of the proceedings at the conference. The scheme of limitation which was prepared by the advisory committee and which he was authorised by His Majesty's Government to support was not adopted by the conference.

Workmen's Compensation Medical Referee.

Dr. Forgan asked the Secretary of State for Scotland why the office of medical referee under the Workmen's Compensation Acts for the county of Lanark, advertised by the department two years ago, had not yet been filled.—Sir Herbert Samuel (Home Secretary) replied: The hon. Member is apparently referring to a vacancy advertised in 1927, which it was subsequently decided not to fill. It was considered at the time that a further appointment was not necessary; and I am advised that the present panel of referees for the county is still adequate for the work.

TUESDAY, SEPT. 22ND.

National Maternity Service.

Dr. Phillips asked the Minister of Health whether he was continuing the negotiations commenced by his predecessor on the subject of a national maternity service, and, if so, when he expected to complete them.—Sir K. Wood (Parliamentary Secretary to the Board of Education) replied: The action taken by my right hon. friend's predecessor was in the first instance to bring this question before the Approved Socities' Consultative Council. The Council appointed a subcommittee, the report of which is being awaited. As regards the second question, my right hon. friend regrets that, like his predecessor, he is unable to give any definite date.

Medical Diary

Information to be included in this column should reach in proper form on Tuesday, and cannot appear if it reacl us later than the first post on Wednesday morning.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUAT MEDICAL ASSOCIATION, Wimpole-street, W.

Monday, Sept. 28th to Saturday, Oct. 3rd.—METR POLITAN HOSPITAL, Kingsland-road, E. Cou in medicine and surgery. Daily 10.30 A.M. to 5.30 P. Demonstrations, lectures, hospital practice.—CE TRAL LONDON OPHTHALMIC HOSPITA Judd-street, W.C. Course in Ophthalmology. Ev afternoon, lecture-demonstrations.—Further particul from the Fellowship of Medicine.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITA Gray's Inn-road, W.C.

Friday, Oct. 2nd.—4 P.M., Mr. J. D. McLaggan: Tub culosis of the Larynx.

ST. MARK'S HOSPITAL, City-road, E.C.

Tuesday, Oct. 1st.—4.30 P.M., Sir Charles Gordon-Watso Results of Radium Treatment for Carcinoma of t Rectum.

MANCHESTER VICTORIA MEMORIAL JEWISH HO PITAL, Elizabeth-street, Manchester.

Wednesday, Sept. 30th.—4.30 P.M., Dr. H. R. Clark The Significance and Treatment of High and Lo Blood Pressure.

MANCHESTER ROYAL INFIRMARY POST-GRADUAT LECTURES.

Tuesday, Sept. 29th.—4.15 P.M., Mr. W. R. Douglas Surgery of the Common Bile-duct.

Friday, Oct. 2nd.—4.15 P.M., Mr. H. H. Rayner: Demo stration of Surgical Cases.

A Hertfordshire Contributory Scheme.—Th St. Albans and mid-Herts hospital contributory schem will not be a year old until Oct. 1st, but it has enrolled 3000 members. On the basis of this membersh it is computed that the amount available for the St. Alb Hospital will be about £1500 per annum.

MEDICAL NEWS

London Hospital Medical College.

The Schorstein Memorial Lecture will be delivered by Dr. Arthur J. Hall, professor of medicine in the University of Sheffield on Thursday, Oct. 15th, at 4.15 P.M. in the Bearsted clinical theatre. His subject will be Chronic Epidemic Encephalitis. All members of the profession are invited to attend.

Hampstead General Hospital.

A series of lectures has been arranged at the Hampstead General and North-West London Hospital. They will be given at 4 P.M. on Wednesdays from Oct. 7th, when Sir William Willcox will speak on Diabetes: its Causation and Treatment, with special reference to toxic causes. The *Dean of the post-graduate school is Mr. Clifford Morson*, from whom particulars may be obtained.

Diagnosis and Treatment of Venereal Diseases.

A course of instruction in this subject will be given by the public health department at Salford from Oct. 8th onwards. It consists of 15 lectures and demonstrations at the municipal clinic, 155 Regent-road. Particulars may be had from the medical officer of health for the city.

Manchester Royal Infirmary.

Members of the honorary staff of this hospital will give post-graduate lectures on Medical, Surgical, and Special Subjects on Tuesdays from Sept. 29th to Dec. 15th (except Nov. 10th) and demonstrations on Clinical Cases on Fridays from Oct. 2nd to Dec. 11th. All meetings begin at 4.15 and are free. Details may be obtained from the secretary for the post-graduate lectures. The Manchester Lloyd Roberts Lecture will be given by Prof. W. Blair Bell, of Liverpool at St. Mary's Hospital, Whitworth-street, on Nov. 10th at 4.15 P.M.

Medical Industrial Psychology.

At the London School of Hygiene and Tropical Medicine a course of 20 lectures on the History and Practice of Medical Industrial Psychology is to be given during the next three months. It will open on Oct. 1st with an inaugural lecture by Dr. Millais Culpin, newly appointed professor of medical industrial psychology in the University of London. Nine of the remaining lectures will also be given by Prof. Culpin, the others being contributed by Prof. Major Greenwood, F.R.S., Miss May Smith, D.Sc., and Mr. Eric Farmer. They fall into three sections, devoted to historical background, modern methods of study and research, and particular problems. The course as a whole is designed to meet the requirements of students for the University Diploma in Psychology, and for the degree of Ph.D. in medicine (non-clinical subjects). Each lecture will be given at the School at 5 P.M., usually on Thursdays and Fridays. Admission to the first lecture, at which Air Vice-Marshal Sir David Munro is to preside, will be free.

Fellowship of Medicine and Post-Graduate Medical Association.

At the Metropolitan Hospital, Kingsland-road, there will be a course in medicine and surgery from Sept. 28th to Oct. 10th (10.30 A.M. to 5.30 P.M. daily). The Prince of *Wales's Hospital, Tottenham*, will give a similar course from Oct. 12th to 24th. The subjects of other courses in October include cardiology at the National Heart Hospital (Oct. 12th to 24th); diseases of the ear, nose, and throat, at the Central London Throat, Nose, and Ear Hospital (Oct. 5th to 31st, with various sections which may be taken separately); tropical medicine at the Hospital for Tropical Diseases (Oct. 5th to 24th); dermatology at St. John's Hospital (Oct. 12th to Nov. 7th); gynæcology at Chelsea Hospital for Women (Oct. 12th to 24th); and diseases of children at Hospital for Sick Children (Oct. 10th to 31st). Evening lectures, intended primarily for candidates for the M.R.C.P. examination, will be held at the Medical Society lecture room on Mondays and Wednesdays at 8.30 P.M. Free lectures will be given at the Medical Society lecture room on Wednesdays at 4 P.M., and free clinical demonstrations in medicine and surgery weekly at various hospitals. Copies of syllabuses may be had from the Fellowship at 1, Wimpole-street, London, W.1.

Hospital Wards from a Cinema Fête.

The old children's ward at the Weston-super-Mare General Hospital have been converted into six private cubicle wards and two double wards, which were formally opened last week by Mr. P. E. Russell, chairman of the executive committee. The accommodation is thus increased 104 beds.

A Farmers' Bed.

At Leicester Royal Infirmary a bed has been endowed by the farmers of the county in memory of Miss Ethel May James, the first secretary of the Leicestershire branch of the National Farmers' Union. The infirmary last week commemorated the 100th anniversary of its foundation by the Rev. William Watts.

Hospital Accommodation at Bath.

Dr. J. F. Blackett, medical officer of health for Bath, reports that the hospital accommodation of the city is as follows: Royal United, 140 beds; Mineral Water, 156; Ear, Nose, and Throat, 50; Eye, 22; Children's Orthopædic, 72; Forbes Fraser, 72; Statutory Isolation, 70; Frome-road Infirmary, 371; Maternity Home, 5.

Royal Waterloo Hospital.

Last year this hospital for women and children received 2095 in-patients and 15,609 new out-patients, who made 72,211 attendances, the largest number since the opening of the institution in 1818. The expenditure of £23,032 exceeded the income by £668, and there is now a deficit of £3465. There is acute need of extension, but the board have felt that it would be unwise to take any action until a final decision as to the removal of Charing Cross Station to the south side of the Thames had been reached, since the adoption of the proposal would have placed the new station in close proximity to the hospital.

Births, Marriages, and Deaths

BIRTHS.

ALCOCK.—On Sept. 19th, at Western Elms Lodge, Reading, the wife of Dr. S. C. Alcock, of a son.

CALDWELL.—On Sept. 14th, the wife of Robert S. Caldwell, M.B., New Milton, Hampshire, of a daughter.

HACKWOOD.—On Sept. 15th, at Ninhams Lodge, Farnborough, Kent, the wife of Dr. John F. Hackwood, of a son.

POTTS.—On Sept. 21st, at The Gables, Bracknell, the wife of Dr. C. Potts, of a son.

MARRIAGES.

BOLAND—SCOTT.—On Sept. 11th, at St. James's, Spanish-place, Edward Rowan Boland, M.R.C.P., M.R.C.S., D.P.H., to Barbara Scott.

FAIRBROTHER—TUPPEN.—On Sept. 16th, at Hambleton Church, Lancaster, Dr. Ronald Wilson Fairbrother to Peggy Lewis Tuppen, of Ryecroft, Hambleton, only daughter of the late Mrs. Tuppen and of Mr. J. H. Tuppen, of Bedford-row, London.

GOODING—PROTHEROE.—On Sept. 21st, 1931, in London, Stanley Gooding, M.D. Cantab., elder son of Mr. and Mrs. F. C. Gooding, of Buckhurst Hill, to Margaret, daughter of Mr. G. Protheroe, of Manorbier, Pembrokeshire.

LOTHIAN—MCLAREN.—On Sept. 15th, at Tron Church, Edinburgh, Douglas B. M. Lothian, M.B., Ch.B., M.R.C.P.E., D.P.M., Rampton State Institution, Notts, to Mary Evelyn McLaren, M.B., Ch.B., D.Psych., only daughter of Dr. and Mrs. John McLaren, Lauriston-place, Edinburgh.

MACBETH—MACDONALD.—On Sept. 12th, at Highgate Presbyterian Church, Ronald Græme Macbeth, B.M., M.R.C.S., to Margaret Raff, elder daughter of Mr. and Mrs. D. W. Macdonald, of Highgate.

MARSHALL—HEXT.—On Sept. 17th, at Christ Church, Virginia Water, Leslie Phillips Marshall, M.C., M.B., B.Chir., to Catherine Mary Hext.

TENNENT—GALE.—On Sept. 19th, at Christ's Church, Esher, Thomas Tennent, M.D., M.R.C.P., to Mildred Evelyn, daughter of Mr. and Mrs. Gale, Gayton, Esher.

TRACEY—SCOTT.—On Sept. 15th, at All Saints', Postwick, Basil Martin Tracey, M.B., F.R.C.S., to Katherine Reavell Scott, daughter of Mr. and Mrs. W. Harding Scott, of Oaklands, Thorpe St. Andrew, Norwich.

DEATHS.

BALDWIN.—On Sept. 20th, in hospital at Vannes, France, Sir Harry Baldwin, Kt., C.V.O., M.R.C.S., L.D.S., Hon. Surgeon-Dentist to the King, of Castle House, St. Helens, Isle of Wight, aged 68.

BIRD.—On Sept. 15th, at Farleigh-road, N., after a long illness, Henry Bird, M.R.C.S., L.R.C.P.

BRADLEY.—On Sept. 21st, at Guy's Hospital, following an operation, Frank William Bradley, M.B., B.S., D.P.H., *of Manor-road, Mitcham, Surrey, and "Shirley," Cross Deep*, Twickenham.

COLLIER.—On Sept. 20th, at his residence, Kearsney Abbey, Kent, Mark Purcell Mayo Collier, M.S. Lond., F.R.C.S. Eng., aged 74.

DAY.—On Sept. 13th, at Ealing, Amelia Frances, widow of William White Day, M.D., in her 90th year.

SIMPSON.—On Sept. 20th, Sir William Simpson, M.D., F.R.C.P., Director of Tropical Hygiene at the Ross Institute, aged 76.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages and Deaths.

NOTES, COMMENTS, AND ABSTRACTS

A FAMOUS TRIAL RECALLED.

Serjeant Ballantine wrote in his Reminiscences that the speculations of scientific men, however eminent, ought never to be made the basis of a criminal prosecution. He had in mind the once-famous trial of Thomas Smethurst, now reprinted in the "Notable British Trials" series, with an admirable introduction by Dr. Leonard Parry.[1] Ballantine had himself prosecuted Smethurst for the murder of Isabella Bankes, and had secured his conviction in spite of a strange error by the chief medical witness for the Crown. Ten doctors thought death was due to poisoning, seven thought the symptoms sufficiently explained by dysentery and pregnancy. If the medical practitioners called by the prosecution were wrong, it was another medical practitioner who put matters right. Acting at a period some 60 years before the constitution of a Court of Criminal Appeal, the Home Secretary, impressed by the outburst of criticism evoked by the verdict, referred the proceedings to Sir Benjamin Brodie, the foremost surgeon of the day. On Brodie's advice, Smethurst received a free pardon. To Lord Chief Baron Pollock, who had tried the case, the Home Secretary explained that the necessity for the pardon arose not from any fault in the tribunal but "from the imperfection of medical science and from the fallibility of judgment, in an obscure malady, even of skilful and experienced medical practitioners." The medico-legal interest of the trial is thus obvious. We may, perhaps, be forgiven for adding that Smethurst, himself a medical practitioner, had been a contributor to our columns. It has even been suggested, as will presently be seen, that he learnt from THE LANCET how a poisoner might escape the gallows.

In December, 1858, Dr. Thomas Smethurst, who had retired from practice, left his elderly wife and went off to live with Miss Isabella Bankes, first going through a form of bigamous marriage with her. Next March Miss Bankes began to suffer from violent diarrhœa and vomiting. Smethurst, nursing her with apparent devotion, called in Dr. Julius (a local practitioner with a Lambeth doctorate in medicine), Dr. Bird (Julius' partner), and finally, by way of special opinion in a difficult case, Dr. Todd, physician to King's College Hospital. The patient grew no better. Julius, suspecting wilful poisoning, had one of the evacuations analysed by Dr. Alfred Swaine Taylor, Professor of Chemistry at Guy's Hospital, who found arsenic. Smethurst was arrested, but, strangely enough, was forthwith released to return to the bedside of his supposed victim. Next day she died, and Smethurst was arrested afresh on a charge of murder, on which he was found guilty. The fact told against him that, a fortnight before her death, he brought a solicitor to Miss Bankes one Sunday morning to make a will which left him most of her property. The judge dwelt rather heavily on the immorality of Smethurst's domestic life and on the wickedness of fetching a lawyer rather than a clergyman to the dying woman. But it could be said in Smethurst's favour that, if he stood to gain £1800 by the will, he stood to lose the income on £5000 in which she had a life interest. As for the poisoning, the Crown witnesses suggested repeated doses of some irritant poison. But no arsenic was found in the body, and only from a quarter to a half a grain of antimony. No arsenic or antimony was found in Smethurst's possession, or in his house, or in any of the food. Ballantine, in his final address to the jury, admitted that the prosecution did not pretend to say positively that death was due either to antimony or arsenic; all they said was that death was due "to some poison or other."

It seems incredible nowadays that such a prosecution could have succeeded. Its prospects had been gravely prejudiced by Dr. Taylor's famous mistake. He had examined various bottles found in Smethurst's room. In one bottle Taylor discovered arsenic. So, at any rate, he swore at the police-court proceedings, and so his assistant swore at the inquest. Taylor later found that this arsenic was due to an impurity in the copper gauze used in his tests. The instrument employed for detection had itself furnished the poison. He corrected his mistake before the trial at the Old Bailey, but critics were not slow to point out that his error might well have hanged the accused. Ballantine's Reminiscences half hint that Smethurst laid a trap for the Crown witnesses by arranging the contents of the bottle between his first and second apprehensions. An ingenious speculation was built upon the fact that Smethurst wrote some notes "On the Excision of Teeth," which were published in THE LANCET in June, 1844. Our issue of that date contained one of a series of articles by Fresenius on the detection of poisons in medico-legal inquiries. It was suggested that Smethurst learnt from these articles that Reinsch's test for arsenic was untrustworthy in the presence of chlorates, and that he deliberately gave chlorate of potassium to Miss Bankes to defeat the usual test. Dr. Leonard Parry rejects the suggestion on three grounds. Smethurst c not be sure that Taylor would (as he did) emp Reinsch's method only; chlorates might not h destroyed the value of the test entirely; fina Fresenius had recommended as the best method detecting arsenic a test which involved add chlorate of potassium; if such a method had b used, Smethurst might have been contributing to own downfall. While in gaol awaiting trial, Smeth sent a letter to THE LANCET fully discussing medical aspects of the case. This was natur withheld from publication while his defence was the hands of his legal advisers, but it was prin after the trial in our issue of Sept. 3rd, 1859. commenting on the verdict, we observed that the m point on which satisfaction was required was whet the medical and chemical evidence was sufficient prove that Smethurst committed murder. Dr. Pa in a careful analysis of the case, thinks, like Benjamin Brodie, that the evidence failed to pr guilt. Lord Chief Baron Pollock, in a final letter the Home Secretary, objected that Brodie had tal no account of the suggestion that Smethurst's mot was to procure abortion—a point little mentio at the trial. In the mass of interesting contempora comment reprinted by Dr. Parry is a letter criticis the medical education of the day for its inattenti to midwifery. The pregnancy of Isabella Bank a possible explanation of many of her suspici symptoms, apparently took the practitioners surprise; one medical witness after another said that he "never studied that branch." It clear from other letters that the medical prof had misgivings about the part it played in t Smethurst proceedings.

Just when public opinion and the reprieve se to be rehabilitating Smethurst's character, he put upon his trial for bigamy. A too confi reference by his counsel to the pardon in respect of murder charge drew from Baron Bramwell t dictum that a pardon is no more a certificate innocence than a jury's verdict of "not guilty Although Smethurst was sentenced to a year's labour for the bigamy, he had, in one sense, the la word with the law. Not long after he came out prison, he succeeded in proving Isabella Bankes's wi

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[1] Trial of Dr. Smethurst (Notable British Trials). Edited by Leonard A. Parry, M.D., B.S., F.R.C.S. Edinburgh and London: Wm. Hodge and Co. Pp. 259. 10s. 6d.

IT is proposed to endow a bed in the Royal Mineral Wat Hospital, Bath, as a memorial to the late Mr. Fre Weatherly, K.C., who is more widely known as the writ of songs than as a lawyer.

FOREIGN-MADE FINE CHEMICALS.

THE QUESTION OF EXEMPTION FROM DUTY.

UNDER Section 10 (5) of the Finance Act, 1926, the Treasury may exempt from the duty imposed by the Safeguarding of Industries Act, 1921, any article in respect of which the Board of Trade are satisfied that it is not made in any part of H.M. Dominions in quantities which are substantial having regard to the consumption of that article for the time being in the United Kingdom, and that there is no reasonable probability of the article being so made within a reasonable period. Orders Nos. 2 and 3, 1930, and Nos. 1, 2, and 3, 1931, exempted from duty until Dec. 31st, 1931, the articles mentioned in the following list:—

acid adipinic
acid isobutyl allyl barbituric
acid lactic which satisfies B.P. requirements
acid oxalic
acid propionic
amidopyrin (pyramidon; dimethyl-amidoantipyrine)
ammonium perchlorate
barbitone (veronal; malonal; malourea; acid diethyl barbituric, diethylmalonylurea; hypnogen, deba)
bromural (dormigene)
butyl methyl adipate
calcium gluconate (calcium glyconate)
celtium oxide
chinoline (quinoline)
chinosol
cocaine, crude
dial (acid diallyl barbituric)
dicyandiamide
didial (ethyl morphine diallyl barbiturate)
diphenyl
diphenyl oxide
dysprosium oxide
elbon (cinnamoyl para oxyphenyl urea)
erbium oxide
ethylene bromide
eukodal
europium oxide
furfurol
gadolinium oxide
germanium oxide
glycol ethers
guaiacol carbonate (duotal)
holmium oxide
hydroquinone
integrators (planimeter type)
lead acetate
lead tetræthyl
lipoiodin
lutecium oxide
mercury vapour rectifiers having mercury cathodes
metaldehyde
methyl cyclohexanol methyl adipate
methyl sulphonal (diethylsulphonemethylethylmethane, trional)
methylene chloride
neodymium oxide
nickel hydroxide
oxymethyl paraoxyphenyl benzylamine methyl sulphate
papaverine
phenacetin (acetparaphenetidine)
phenazone (antipyrine; phenyl dimethylpyrazolone; analgesin; anodynine; dimethyl oxychinizin)
phenetidine, para-
phytin
piperazine (diethylenediamine; dispermin)
planimeters
R. potassium chlorate
potassium ethylxanthogenate (potassium xanthogenate)
potassium guaiacol sulphonate (thiocol)
R. potassium hydroxide (R. potassium caustic; R. potassium hydrate)
R. potassium permanganate
praseodymium oxide
pyramidon-veronal
quinine ethyl-carbonate
radium compounds
resorcine (resorcinol)
salol (phenyl salicylate)
samarium oxide
scandium compounds
sodium ethyl methyl butyl barbiturate
strontium carbonate
strontium nitrate
styracol (guaiacol cinnamate)
sulphonal
synthalin
terbium oxide
thulium oxide
urea (carbamide)
vanadium-silica compounds specially prepared for use as catalysts for sulphuric acid manufacture
ytterbium oxide
yttrium oxide

The Board of Trade is now considering the question of renewing these exemptions. Communications should be addressed before Oct. 16th to the principal assistant secretary, Industries and Manufacturers Department, Board of Trade, Great George-street, London, S.W.1.

DEVELOPMENT OF SCHOOL CHILDREN IN KENYA.

Dr. G. M. Hargreaves [1] has investigated the height and weight of children in Kenya, and finds that with one exception they surpass English children in these respects. He believes that climatic conditions in the Colony tend to produce heavier and taller children than those bred in England. This is in harmony with similar findings elsewhere, for in Kerr's Fundamentals of School Health it is noted that the British descendants in the elementary schools of New South Wales are equal in weight and height for age to the secondary and public school pupils of the mother country. The Indian boys of Kenya are much better off in weight and height than those living in the densely populated city of Bombay, the reasons for this being fairly obvious. Another noteworthy feature is the earlier age at which the girls in Kenya begin to outstrip the boys both in height and weight. In height they take the lead at 8 and are not passed by the boys until the age of 14, the corresponding dates in England being 11 and 14. In weight the Kenya girls lead at 8 and the boys do not pass them till 16, while in England the superiority of the girls lasts only from 11 till 15.

It would, of course, be expected that the greater the proportion of children who were born or had lived much of their lives in Kenya, the more would the influence of the new environment be shown. Six years ago, Dr. de Boer found the age when the girls took the lead to be 9 instead of 8, while Dr. M. MacKinnon, some seven years ago, put it at 10. Dr. de Boer [2] was inclined to regret the precocious development on racial grounds, while Dr. MacKinnon believed it to be associated with mental deterioration. The diminution of the power of mental application when a child is growing rapidly in height is a well-known phenomenon, but as a rule it is not associated with gain in weight. Dr. Hargreaves could find no evidence of inferior intelligence in the reports from the Education Department. He makes some observations on the incidence of dental caries, though he confesses that his figures are not sufficiently exact for statistical purposes. In his experience, dental caries is higher in Mohammedans than in Hindus; among the Arabs and Africans it was higher in those who lived in the coast towns, while at a "reserve" school 30 miles from the nearest town no cases of caries were found. Dr. Hargreaves has noticed that in the African the occurrence of caries usually begins at a much later age than in Europeans. In connexion with defective vision, he says that among 600 up-country natives he found no case where the vision was less than 6/6 on account of errors of refraction, but in Indian children he found acute progressive myopia to be specially common. Several of his findings are suggestive, though the numbers are comparatively small and the records need confirmation by exact physical and mental measurement.

PRISON DIETARIES IN THE UNITED STATES.

WITH the passing of the view that retributive punishment is the only function of imprisonment, there has naturally appeared an amelioration of the conditions of life of prisoners in all civilised countries. More and more attention is now paid to the nutritional requirements of prisoners, just as it is to their other physical and psychological needs. It is not surprising, therefore, that the adequacy of existing prison dietaries should be reviewed from time to time in the light of modern views on nutrition. Such a review has just taken place in the United States.[3] Investigations were made of the food consumption of prisoners in five Federal prisons. The average daily calorie value of the food supplied varied from 4000 to well over 5000. The amount of protein ranged from 106 to 208 g. and that of fat from 118 to 209 g. In some prisons as much as one pound of food per man per day was wasted, and in general an ample quantity was available for men doing a hard day's work. From a qualitative point of view the diets seemed fairly satisfactory. The vitamin content was moderately good, but the amount of calcium tended sometimes to be rather low. The chief complaint of the prisoners themselves was of the monotony of the menus, and the view is expressed in the report that it would be a sound policy to encourage as great a variety as possible in the choice of foods. The present rationing system is a purely arbitrary one, based on previous experience of costs, which vary widely in different prisons. It is intended to evolve a more uniform system, based on the calculated cost of providing satisfactory dietaries in the modern sense of the term. The production of vegetables and milk at the prison farms will be encouraged to an even greater extent than obtains at the present time. It is proposed to arrange a scheme of redistribution whereby produce that can easily be raised at one prison farm may be canned and sent to another prison where its production is less satisfactory.

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[1] Kenya and East Africa Med. Jour., August, 1931, p. 124.

[2] Ibid., December, 1924.

[3] Howe, P. E., and MacCormick, A. H.: Amer. Jour. Pub. Health, 1931, xxi., 993.

CLIMATE FOR EMPHYSEMA.

A CORRESPONDENT (" Stethos ") writes: " Would anyone kindly mention the most suitable (and economical) place on the south coast—between Dover and Penzance—for an old gentleman with bronchitis, emphysema, bronchial asthma, and hypertrophy of the right ventricle, who dreads the cold and damp of the autumn, winter, and spring ? "

PRESCRIPTIONS FOR THE DEAF.

Captain L. V. Kahn-Rein writes to say that his firm (Messrs. F. Charles Rein and Son, 30, Charing Cross-road, London, W.C. 2) have for the last eight years built instruments to an otologist's specification, with the assistance of an audiogram registering the hearing capacity of the patient. His interest in the matter dates from a visit to America in 1922 when he had the opportunity of seeing audiometer tests carried out in grading the hearing capabilities in school-children. His firm is able to register the performance of any hearing device on a photographic film strip.

Appointments

BEGG, A. C., M.D., Ch.B. Edin., M.B. Lond., and WOODS, W. H. O., M.B., B.Ch. Camb., F.R.C.S. Edin., Medical Referees under the Workmen's Compensation Act for the Districts of the Aberayron, Cardigan, Carmarthen, Llandilo Fawr and Ammanford, Lampeter, Llandovery, Llanelly, Newcastle-in-Emlyn, Neath and Port Talbot County Courts.

HADDOW, W., M.B., Ch.B. Glasg., Certifying Surgeon under the Factory and Workshop Acts for the Kirkham District of the County of Lancaster.

Vacancies

For further information refer to the Advertisement columns.

Aberdeen Royal Mental Hospital.—Second Asst. Phys. £400.

Aberdeen, Woodend Municipal Hospital.—Jun. Res. M.O. £100.

Altrincham General Hospital.—Jun. H.S. At rate of £120.

Ayr County Hospital.—H.S. At rate of £150.

Banbury, Horton General Hospital.—Res. M.O. At rate of £150.

Bangor, Carnarvonshire and Anglesey Infirmary.—Res. H.S. and Jun. Res. H.S. £150 and £100 respectively.

Beckenham, Kent, Bethlem Hospital, Monks Orchard, Eden Park. Res. H.P. At rate of £150.

Bedford County Hospital.—Asst. H.S. At rate of £130.

Belgrave Hospital for Children, Clapham-road, S.W.—Two H.P.'s. Each at rate of £100.

Benenden, Kent, National Sanatorium.—Res. Asst. M.O. £300.

Birmingham, Public Health Dept.—Asst. M.O. for Tuberculosis Section. £400.

Birmingham, Selly Oak Hospital.—Cas. O. At rate of £200.

Bolingbroke Hospital, Wandsworth Common, S.W.—H.S. At rate of £120.

Bradford, Royal Eye and Ear Hospital.—Jun. H.S. £150.

Bristol City and County Mental Hospital.—Third Asst. M.O. £450.

Bristol Eye Hospital.—Res. H.S. £500.

Cardiff, King Edward VII. Welsh National Memorial Assn.—Two Area Tuberculosis Physicians. Each £750.

Cardiff Royal Infirmary.—Two H.S.'s to Special Departments. Also H.P. and H.S. All at rate of £50.

Central London Throat, Nose, and Ear Hospital, Gray's Inn-road, W.C.—Assts. for Out-patient Dept.

Cheadle, Cheshire, Barnes Convalescent Hospital.—Res. M.O. £250.

Chester Royal Infirmary.—H.P. and two H.S.'s. Each £150.

City of London Hospital for Diseases of Heart and Lungs, Victoria Park, E.—H.P. At rate of £100.

Colchester, Essex County Hospital.—Asst. H.S. and Registrar £120.

Denbigh, North Wales Sanatorium, Llangwyfan.—Jun. Asst. Res. M.O. £250.

Dewsbury and District General Infirmary.—H.S. and Secon H.S. £200 and £150 respectively.

Exeter, Royal Devon and Exeter Hospital.—Cas. O. and H.S. to Special Depts. Each at rate of £150.

Folkestone Royal Victoria Hospital.—Jun. Res. M.O. At rat of £100.

Gateshead Dispensary.—Asst. M.O. £300–£350.

Glamorgan County Mental Hospital, Bridgend.—Jun. Asst. M.O £350.

Golden-square Throat, Nose, and Ear Hospital, W.—Hon. Surge and Hon. Asst. Surgeon.

Harrogate Infirmary.—H.P. and Jun. H.S. At rate of £150 and £140 respectively.

Hereford County and City Mental Hospital.—Med. Supt. £6

Hereford, Herefordshire General Hospital.—H.S. £150.

Hospital for Sick Children, Great Ormond-street, W.C.—H.P. At rate of £100. Clin. Asst. Also Med. Reg. £250.

Hospital for Women, Soho-square, W.—Res. M.O. At rate o £100.

Hull Maternity Home and Infants' Hospital.—Sen. Res. M.O. £150.

Leeds, General Infirmary.—Hon. Asst. Orthopædic Surgeon.

Leicester Royal Infirmary.—Two Surgical Dressers. 10s. 6d. a week.

Leyton Borough.—Deputy M.O.H., &c. £660.

Liverpool Eye and Ear Infirmary, Myrtle-street.—H.S. to Oph Dept. £120.

London Female Lock Hospital, Harrow-road, W.—H.S. At rate of £150.

London Homœopathic Hospital Great Ormond-street, W.C.—Asst. Physician.

Macclesfield General Infirmary.—Second H.S. At rate of £150.

Maidstone, Kent County Ophthalmic and Aural Hospital.—H.S. At rate of £200.

Manchester Royal Eye Hospital.—Jun. H.S. £120.

Manchester Royal Infirmary, Robey-street.—H.S. At rate £100–£200.

Manor House Hospital, Golders Green, N.W.—M.O. to Out patients. 1½ gns. per session.

Metropolitan Ear, Nose and Throat Hospital, 2, Fitzroy-square W.—Anæsthetist.

Metropolitan Hospital, Kingsland-road, E.—Sen. and Jun. H.P.'s and H.S.'s. Also Two H.S.'s. All at rate of £100.

Middlesex County Council. County Tuberculosis Sanatorium, South Mimms.—Asst. Res. M.O. £400.

National Hospital, Queen-square, W.C.—Asst. Registrar. £200.

Newcastle-upon-Tyne, Hospital for Sick Children.—H.S. At rat of £100.

Norwich, Norfolk and Norwich Hospital.—H.S. for Ear, Nose and Throat. £120.

Nottingham General Hospital.—H.P. At rate of £150.

Paddington Green, Children's Hospital, W.—H.P. and H.S. Each at rate of £150.

Portsmouth, St. Mary's Hospital, St. Mary's Institution, &c.—Third Asst. Res. M.O. £250.

Preston and County of Lancaster Royal Infirmary.—H.S. and Cas. O. Each at rate of £150.

Queen Mary's Hospital for the East End, E.—Surgical and Denta Anæsthetists. 50 guineas and £25 respectively.

Queen's Hospital for Children, Hackney-road, E.—Surgeon Ear, Nose and Throat Department.

Richmond, Surrey, Royal Hospital.—Hon. Surg. to Ear, Nose, an Throat Dept.

Rochdale Infirmary and Dispensary.—Jun. H.S. £200.

Royal Free Hospital, Gray's Inn-road, W.C.—Res. Cas. O. At ra of £150.

Royal National Orthopædic Hospital, 234, Gt. Portland-street, W. Hon. Asst. Surgeon.

St. Helens County Borough.—Asst. M.O.H. £500.

St. John's Hospital for Diseases of the Skin, 49, Leic W.C.—Hon. Jun. Med. Reg.

St. Mary's Hospital for Women and Children, Plaistow, E. Res. and Asst. Res. M.O.'s. At rate of £175 and £1 respectively.

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ADDRESSES AND ORIGINAL ARTICLES

THE PHYSIOLOGY OF PAINFUL SENSATION

IN RELATION TO SOME CLINICAL PROBLEMS IN NEUROLOGY.*

By C. P. Symonds, M.D. Oxf., F.R.C.P. Lond.,

PHYSICIAN FOR NERVOUS DISEASES, GUY'S HOSPITAL; ASSISTANT PHYSICIAN, NATIONAL HOSPITAL, QUEEN-SQUARE.

I propose to discuss the nature and distribution of the pains that may result from injuries to the nerve-fibres of the sensory pathway, selecting for this purpose a few examples from lesions at different levels.

Pathological Lesions.

PERIPHERAL NERVES.

In the condition known as *causalgia*, which may sometimes follow injury to one of the peripheral nerves, the unfortunate patient suffers from an almost continuous burning pain in the peripheral distribution of the injured nerve. Associated with the spontaneous pain there is an extreme degree of tenderness to stimulation in the peripheral distribution of the nerve so that even a light contact or a sudden change of temperature may result in what is described by the sufferer as an agonising pain. This sensation has further two characteristics—a certain explosive vividness and a tendency to be referred diffusely to the whole distribution of the nerve instead of to the spot stimulated.

When the skin of the affected area is examined for sensibility in the ordinary way, it will be found that there is a relative defect of sensibility to the ordinary forms of stimulation so that, for instance, a degree of touch which, on the sound hand, is regularly appreciated as such, is not felt in the median supplied area of the injured hand.[1] There are other changes to be observed, such as dryness or sweating of the skin and sluggishness of the capillary circulation. But the point I wish to emphasise is the association of three phenomena—spontaneous pain, a raised threshold for all forms of cutaneous sensibility, and painful over-reaction to such stimuli as are able to cross the threshold.

POSTERIOR ROOT.

Working our way up the sensory pathway, we may next consider analogous phenomena quite commonly observed in cases of tabes, where the lesion is of the posterior roots or more probably at the point of entry of the posterior root-fibres into the spinal cord. It is not unusual in cases of tabes to encounter the complaint of spontaneous pain of segmental distribution, for instance, on the chest or abdomen, associated with extreme hyperalgesia—that is to say, the patient will suffer the keenest pain whenever the skin of the affected area is stimulated. It is to be noted, by the way, that the most effective stimulus is of the kind which may be presumed to stimulate a large number of nerve-endings simultaneously or in rapid succession, such as stroking contact with the hand or a pin dragged across the skin. Extremes of temperature may produce the same effect, and the sufferer learns from experience to be very careful about letting himself down into a cold or hot bath and to avoid turning movements of the body such as may cause stroking contact with the underclothes. Again, if we examine the area concerned, we shall find there is a relative insensibility to cotton-wool, pinprick, and temperature as compared with normal parts—the phenomenon of raised threshold and over-reaction.

SPINAL CORD.

A similar state of affairs may be observed, though not at all commonly, it is true, in lesions of the spinal cord. Holmes,[2] in his Goulstonian lectures on *traumatic lesions of the spinal cord, has published* instances from his experience, and every neurologist will have met with examples. As might perhaps be expected, they are to be found chiefly in diseases affecting the central areas of the spinal cord, such as hæmatomyelia and syringomyelia. I have seen several cases of the latter condition, in which intolerable pain and hyperalgesia have been the leading symptoms, again associated with relative anæsthesia to temperature and pinprick. In cases of spinal cord tumour and disseminated sclerosis I have met with the same phenomenon. The following is a characteristic example:—

Mrs. A., aged 34, was referred to me in 1920 with the story that six weeks previously, while seated at dinner, she had suddenly experienced a sensation of painful numbness in her right arm and leg. During the subsequent week this sensation increased in intensity on the right side and later extended to the left lower limb and left side of the trunk up to the breast and the two ulnar fingers of her left hand. She had noticed also some slight weakness of her legs and a little hesitancy in micturition.

At the time of examination she stated that the extent of the numbness had diminished. Her chief complaint was of spontaneous excruciating pains involving the right *hand, right side of the trunk*, and *right lower limb*. These sensations she described as if her finger-nails and toe-nails were being torn off and her bones were being crushed in machinery. She complained also of great soreness over the right side of the body and right thigh.

On examination she showed a ptosis, enophthalmos, and miosis on the right side—the signs of a cervical sympathetic paralysis; there was a slight degree of nystagmus on deviation of the eyes to the right. The intrinsic muscles of the right hand were weak and perhaps wasted as compared with the left. *Along the inner border of the right arm* and over the right side of the trunk cotton-wool touch, pinprick, and stroking contact gave rise to intense pain. Over the same area temperatures which on the other side of the body were described as warm or cool were referred to as burning or icy cold. There was no loss of sensibility to cotton-wool, but over the area of hyperalgesia sensation to pinprick was markedly dulled—that is, a stronger stimulus was required to produce a sensation than on the left side, but when sensation came it was explosive and exaggerated. Over the lower abdomen and thigh on the right side heat and cold were imperfectly distinguished. On the left side of the body there was no definite upper level of sensory defect but sensibility to pinprick was diminished over the whole of the lower limb and the lower part of the trunk. There was no loss of postural sense on either side. The tendon-jerks in the upper limbs were normal; the abdominal reflexes in the left side were difficult to obtain, there was relative weakness of flexion at the left hip. The knee- and ankle-jerks were present and equal, and both plantar responses were absent. There was no clinical or radiographic evidence of vertebral disease. The Wassermann reaction was negative in blood and spinal fluid. The fluid contained nine lymphocytes per c.mm., showed a slight increase of protein (0·04 per cent.) and of globulin, and an abnormal colloidal gold curve 0 1 1 2 1 1 0 0 0 0.

In the course of the subsequent four years the pains and hyperalgesia gradually diminished in extent and severity but she continued to have occasional clawing pains in her right hand with a permanent sensation of numbness and pain on stroking contact.

She had a single generalised epileptic fit three months after I first saw her. Two and a half years later she had an attack of girdle pain around her trunk at the fifth thoracic level with numbness in her right lower limb. On examination she showed in addition to the relics of her original lesion defective postural sense in the toes of both feet, diminution of all the abdominal reflexes, and an occasional extensor plantar response on both sides.

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* Part of a lecture to the Leeds University Medical Society.

The diagnosis of disseminated sclerosis in this case is rendered probable by the clinical facts together with the findings in the cerebro-spinal fluid. In a disease in which multiple lesions are the rule, it is not possible to determine with certainty the site of any one of them, but the bilateral distribution of the sensory disturbance with an upper level on both sides corresponding to that of the eighth cervical segment, together with the cervical sympathetic involvement, point to a focus in the cervical enlargement of the spinal cord as the cause of the right-sided pain and hyperalgesia for which she originally came to me.

BRAIN-STEM.

Still following the sensory pathway upward, we find that in certain lesions of the brain-stem we may meet with similar phenomena. For instance, occlusion of the posterior inferior cerebellar artery by thrombosis results in a particularly discrete clinical syndrome, enabling us to localise the lesion with accuracy. One of the constituent symptoms of this syndrome is a loss of sensibility to pain, temperature, and, to a certain degree, to cotton-wool, on the opposite side of the body, due to a lesion of the spinothalamic tract. In one or two instances of this syndrome, within my own experience, and in several that have been published by others, the patient has shown the phenomenon of raised threshold and over-reaction.

THALAMUS.

It is, however, when we get nearer the optic thalamus itself that we find this syndrome most constantly and in its most marked degree, so that a so-called "thalamic syndrome" is recognised, in which the most constant symptom is that of spontaneous pain of hemiplegic distribution with relative loss of cutaneous sensibility, but extreme painful over-reaction to any stimulus that is strong enough to excite. The patient in this condition will describe his pains and painful reactions to stimulation in the most vivid language and, perhaps the most striking feature of the phenomenon which I am describing, from lesions at whatever level, is the explosive vivid quality of the painful sensation.

Human Experiment.

Before discussing the significance of these clinical facts, I shall pass to the consideration of another group of material—that obtained from experimental injury in man.

This began with the classical researches of Head and Rivers.[3] Head had the radial nerve cut in his own forearm and, together with Rivers, made careful observations upon the subsequent disturbance of sensation. Briefly, they described a central zone of anæsthesia to all forms of stimuli and, surrounding this, a very narrow marginal or intermediate zone in which finer stimuli, such as cotton-wool touch and degrees of temperature not far removed from the skin, were not appreciated at all, but painful stimuli, such as pinprick and extremes of heat and cold, were appreciated more vividly than on the normal skin. In the course of recovery, they observed that the central (originally anæsthetic) zone passed through a stage comparable with that observed at first in the intermediate zone. That is, there was a stage in which sensibility to the finer stimuli remained absent whilst coarser stimuli were now perceived. Furthermore, these coarser stimuli produced an explosive painful over-reaction recognised as an altogether new quality of sensation. They were led to the conclusion that there existed two separate systems of nerve-fibres and nerve-endings—that the one group, which they called epicritic, was concerned with the registration of cotton-wool touch and finer grades of temperature; and that the other, the protopathic group, was concerned with the registration of coarser stimuli of a painful character.

Head and Rivers believed that the epicritic fibr in a peripheral nerve had a wider distribution wi less overlap than the protopathic. Hence, as result of nerve section, a central zone, in which both epicritic and protopathic sensibility were lost, and a narrow zone outside this, in which epicritic sensation only was lost, leaving protopathic sensibili unmasked. They further concluded that in the process of regeneration protopathic sensibility returne first, so that in the recovering central area there w a phase during which protopathic sensibility could observed before it was covered up and masked epicritic. This theory implied under normal co ditions an antagonism between protopathic epicritic impulses, in which the epicritic held th mastery and inhibited the protopathic. In areas which epicritic sensibility was absent and prot pathic remained, its uninhibited activity led to t explosive over-reaction to suitable stimuli. Trot and Davies,[4] who repeated the experiment of h nerve section upon themselves and upon a larg scale, confirmed in the main the observations of He and Rivers, but arrived at different conclusion They found that in the intermediate or margin zone there was a gradually increasing defect from outer edge inwards of all forms of sensibility, a considered it to be due to overlapping of cutaneous supply from the cut nerve by that others. They observed that the hyperalgesia in th marginal zone developed only 10 or 12 days aft the nerve section, and concluded therefore that could not be explained as a direct result of the nerv section as Head and Rivers's theory required. The noted that this hyperalgesia of the marginal zo passed off in the course of six or seven weeks—that i before phenomena of regeneration were observe They suggested that this marginal hyperalgesia wa due to products of degeneration from the dea terminal nerve-fibres causing irritation of th surrounding intact nerve-endings.

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In brief, Trotter and Davies found themsel unable to agree with the epicritic-protopathic theo of Head and Rivers, and considered the phenomen of raised threshold with over-reaction "consiste with the view that it depends on some condition the recovering nerve or nerve-ending which is only very slowly restored to the normal."

THALAMIC SYNDROME.

Head's attention was later attracted to the thalamic syndrome to which I have already referred, and he sought here again to explain the facts on the assumption that there are two centres in consciousness for sensation, on the one hand the thalamus itself, which is concerned with what one may call affective sensibility—painful or pleasurable—and on the other hand the cerebral cortex concerned with finer qualities of sensation. He supposed that the thalamus was normally inhibited by a cortico-thalamic strand of fibres and that the thalamic syndrome was a release phenomenon due to a lesion of this inhibitory tract. The general idea underlying this hypothesis is, it will be seen, the same as that which formed the basis of the epicritic-protopathic theory of the peripheral mechanism of sensation.

In criticism of Head's thalamic hypothesis it may be pointed out that it does not explain the constant occurrence—as admitted by himself and Holmes in their joint paper [6]—in all cases showing the so-called thalamic pain and painful over-reaction, of some degree of sensory *loss* on the affected side of the body. Nor does it explain the occurrence of similar phenomena as the result of lesions in the brain-stem and spinal cord.

Trotter's hypothesis, on the other hand, seems to provide a satisfactory explanation for the clinical facts which I have already set out. We have noted that the phenomenon of raised threshold and over-reaction with or without spontaneous pain may be observed from lesions of the sensory pathway at any level—peripheral nerve, posterior root, and spino-thalamic tract in cord and brain-stem up to the level of the thalamus itself.

Judging from clinical observation the essential condition for the production of this syndrome at whatever level is a certain degree of incompleteness of the lesion. The necessary degree of incompleteness may develop ab initio, or it may be attained only at a certain stage of recovery. If recovery then continues and the lesion becomes less complete, the necessary conditions for the syndrome are lost and it disappears—as in the regeneration of a peripheral nerve, and in many lesions of the spinothalamic tracts. Or again, in the case of a progressive lesion, the syndrome may appear, and later disappear as the lesion becomes more complete; for instance, in the advancing degeneration of the posterior root-fibres in tabes. Occasionally, however, the lesion may become stable at the essential degree of incompleteness and the syndrome persists indefinitely.

These are the main facts as they appear to me from clinical observation, and are consistent with the hypothesis originally suggested by Trotter and Davies that the phenomena of raised threshold and over-reaction observed in the skin supplied by a regenerating nerve are due to a certain pathological state in the nerve-fibres themselves.

ACTION CURRENT AFTER NERVE SECTION.

We may find some further support for this hypothesis among the data provided by experimental work on animals. It has been known for many years that stimulation of a motor nerve causing a contraction of the muscle it supplies is associated with the passage of an electric current down the nerve which can be recorded by suitable instruments, and is known as the action current. Within recent years it has been possible by means of valve amplifiers to demonstrate and record similar action currents passing up the afferent nerve-fibres as the result of peripheral stimulation.

Most of this work has been done at Cambridge by Adrian and his collaborators,[7] and they have shown that the action currents in afferent nerves behave on the whole in very much the same way as those observed in the efferent fibres. The response to peripheral stimuli is of an all or nothing type and takes the form, not of a continuous current, but of a sequence of impulses of extremely brief duration separated by almost equally brief interruptions due to the refractory state of the nerve which immediately follows the passage of a current. Using various stimuli—touch, heat and cold, pressure, joint movement, and pinprick—such as would presumably in the conscious animal give rise to corresponding sensations of specific quality, Adrian has found that the action current is in all cases very much the same, lending support to the supposition long entertained that there is no specific quality in the nervous impulse as conducted from the various sense organs, and that the specific qualities of conscious sensation depend upon some transmutation at the central (cerebral) end of the sensory pathway. The only difference observed between the action currents resulting from weak or strong stimuli is that in the case of the latter the frequency of the impulses is higher and the duration longer. This suggests that the only means available at the central end of the pathway for measuring the intensity of a stimulus is the number of impulses arriving at the same point in a given time.

In the case of painful stimuli—that is, stimuli which would presumably cause pain in the intact animal—the action current is of relatively long duration. Adrian therefore suggests that "the main feature of the discharge which causes pain is that it must possess a certain massiveness." Adrian [8] has further investigated the action currents which develop in the central end of an afferent nerve after section or injury. He has shown that under such circumstances a persistent discharge develops with a frequency comparable to that obtained from stimulation of the peripheral sense organs and may continue for as long as two hours.

To quote from his conclusions:

> "It has been found that the activity is due to repeated excitation from the cut ends of nerve-fibres of a particular type, and that it can be abolished or greatly reduced by treating the ends with novocain, or by removing the thick nerve sheath and any blood-vessels and connective tissue adhering to the nerve."
>
> "Until more data have been collected it would be unwise to say how far these discharges are responsible for the pain which is felt after injury to the tissues. The fibres in which they occur are distributed to structures which give rise to pain and are not usually credited with giving rise to any other sensation, and the stimuli which produce them—freeing the nerve from surrounding tissues, cutting, &c.—cause reflex movements in the spinal animal and would be likely to cause pain in man."

Conclusion.

These conclusions have an obvious bearing upon the problems which we have been discussing, and especially upon the hypothesis that the pain and painful over-reaction resulting from a partial lesion of the sensory fibres may be due to loss of insulation and consequent contact of naked axis-cylinders with surrounding connective tissue. It would not be profitable to follow the implications of this work of Adrian's too far. Its direct bearing is upon the phenomenon of spontaneous pain. But it seems at least possible that in the case of a partial lesion (as opposed to complete section) the nerve-fibres might lesion defective postural sense in the toes of both feet, diminution of all the abdominal reflexes, and an occasional extensor plantar response on both sides.

The diagnosis of disseminated sclerosis in this case is rendered probable by the clinical facts together with the findings in the cerebro-spinal fluid. In a disease in which multiple lesions are the rule, it is not possible to determine with certainty the site of any one of them, but the bilateral distribution of the sensory disturbance with an upper level on both sides corresponding to that of the eighth cervical segment, together with the cervical sympathetic involvement, point to a focus in the cervical enlargement of the spinal cord as the cause of the right-sided pain and hyperalgesia for which she originally came to me.

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In brief, Trotter and Davies found themsel unable to agree with the epicritic-protopathic the of Head and Rivers, and considered the phenome of raised threshold with over-reaction "consi with the view that it depends on some condition all cases function is for ever impaired; no matter whether the fracture has taken place within or external to the capsule, whether it has united by ligament or bone, shortening of the limb and lameness are the inevitable results."[11]

Now that a method is at command adequate to assure the essentials of functional repair, fracture at the hip may be considered from the therapeutic standpoint as an entity. If, therefore, the two types of fracture are fairly equal in number, a satisfactory result may be predicted in 85 per cent. of the cases in which efficient treatment has been carried to a conclusion, as compared with 22 per cent. in the cases† investigated by the British committee.[12]

The last support of the tripod on which the negative standard is based is the danger of positive treatment.‡ This has now been disproved by comparative statistics—viz., Campbell,[13] 205 elderly patients with a mortality of less than 5 per cent.; Waldenström,[14] 103 cases, 50 being over 70, 10 per cent.; Löfberg,[15] 264 cases, 6 per cent.; 77 cases at the Hospital for Ruptured and Crippled, 6 per cent.; 42 cases at the Mayo Clinic,[16] 14·2 per cent. The highest death-rate is that reported by Reggio,[6] 49 cases, 26·5 per cent. Even this figure compares favourably with the statistics most available for comparison, reported from the Presbyterian Hospital of Philadelphia[17]: 58 cases with 16 deaths, 27·3 per cent., and is far below that of Smith[11]: 60 cases, 38 deaths, 63 per cent.

FIGS. 1 2 3.

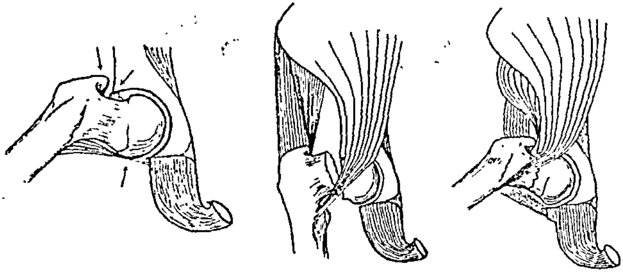

FIG. 1.—Showing the range of abduction permitted by the angle of the neck of the femur and its limitation by capsular tension and bony contact.
FIG. 2.—Showing the typical upward displacement and outward rotation of the shaft fragment and the deforming influence of muscular contraction which, according to Sir Astley Cooper, cannot be controlled by external appliances.
FIG. 3.—Showing the security assured by ligamentous tension, bony contact, and suppressed muscular action in the attitude of full abduction.

The practical effect of a teaching which has offered no incentive to efficiency has been to standardise neglect. Of 120 consecutive cases of ununited fracture at the hip, recorded at the Mayo Clinic (Henderson[18]), "not one had been efficiently treated at the time of the injury," although but 5 per cent. of the patients were over 70 years of age. Of 170 consecutive cases recorded at the Hospital for Ruptured and Crippled, only 52 were received within a week of the injury; the others, with a few exceptions, represented inefficient treatment or neglect—the distinction, as far as indicated by results, being somewhat problematical.

The abduction treatment, since it is opposed to what is called the consensus of opinion, has in the past received little consideration in the text-books. Now, however, it is coming into general use, and this seems an opportune time, in view of the various modifications of the treatment that have been introduced, either by inadvertence or intention, to present again what may be termed the orthodox version in the sense that it has not been materially changed since its introduction.

The Medial Fracture.

In the application of what may be termed the anatomical method to the complete medial fracture, the head fragment, contained in the acetabulum, is considered as a fixed point, to which the movable fragment must be adjusted. This outer fragment projects upward from the shaft, and it can be brought into line with its fellow in the same horizontal plane only by abducting the shaft to the degree that corresponds with the angle of the femoral neck (Figs. 1–3). Thus, the shortening and outward rotation having been corrected, the limb is abducted, and as the limit of the normal range is approached, tension on the capsule, which encloses each fragment, must align them and force a resistant contact. In this attitude of complete abduction and extension, stability is assured by mutual pressure of the fractured surfaces; by the inclusion of the fracture line of the subcapital fracture within the acetabulum; indirectly by the contact of the base of the neck and the trochanter with its projecting border; finally, by the complete suppression of muscular contraction as an agent of displacement. Furthermore, the attitude of full abduction and extension, by tension on the anterior part of the capsule and the overlying iliopsoas muscle, must prevent the interposition of tissue between the fragments if the limb is rotated inward to the required degree.

Repair of the medial fracture is an interstitial process, unaided by external callus, and depends therefore on secure and prolonged apposition of the fragments. In the treatment of fractures at the base, repair is practically assured, and the correction of deformity to restore normal function is the first consideration. In fractures of this type, the neck in relation to the shaft is displaced downward and backward, and to this position the limb-fragment which is under control must be adjusted, by reducing the shortening and apposing the fractured surfaces by inward rotation and abduction. This manipulation does not differ essentially from that already described; deformity, even if resistant, is easily corrected by natural leverage on the fulcrum of the acetabular rim. The traditional impaction, to disturb which was once a "surgical crime," is no longer of any special significance. Indeed, it would appear that the be left in a condition in which they would only react to a strong stimulus and would then react excessively.

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† In these cases the results as analysed by Sir Robert Jones were as follows: in 20 cases between the ages of 26 and 45 there were but six good functional results; in 30 cases between 5 and 50, eight; in 36 cases over 60, five, or 22 per cent.: and in but 16·4 per cent. were there both good anatomical and functional results.

‡ "If I had a mother who were to have a fracture of the neck of the thigh-bone I would say, 'Just make her as comfortable as you can and let her go without any further consideration.'"—L. A. Connor, quoted in a discussion on ununited fracture at the hip, Jour. of Med., 1927, viii., 235.

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THE ABDUCTION TREATMENT

AS A PRACTICABLE ROUTINE FOR ALL TYPES OF FRACTURE AT THE HIP-JOINT.

By ROYAL WHITMAN, M.D., F.A.C.S.,

OF NEW YORK.

THE long campaign to extricate fracture of the neck of the femur from the therapeutic slough of despond has verified the proposition that "only by varied iteration can alien conceptions be forced upon reluctant minds." On this occasion, I shall vary the iteration by suggesting that the established or standard practice is the expression of what may be figuratively termed an inferiority complex, since it is an adaptation to the mechanical inadequacy of conventional appliances to meet the requirements of normal repair. For, manifestly, since the neck of the femur projects laterally from the shaft, splinting and traction can at best appose the fragments only in a lateral and, therefore, unstable relation.

This inadequacy was clearly demonstrated by Sir Astley Cooper early in the last century, and the rules of conventional practice are based on his conclusions—namely, that the result is practically determined by the situation and character of the injury, and that positive intervention is essentially hazardous and futile. Hazardous, because the typical patient is aged and infirm, and because a possible impaction might be "broken up" which might otherwise assure union. Futile, because the typical complete fracture is incapable of repair. Therefore, "the ideal object of treatment, restoration of form and function, is rarely to be attempted or even sought. The first indication is to save life, the second to get union, the third to correct or diminish displacements" (Stimson).[1]

Treatment in accord with these indications, in which the fracture, as such, is the last consideration, has been symptomatic in intention and perfunctory in application.

Bissell,[2] from an investigation in three of the leading hospitals in New York, concluded that as a treatment for fracture it was absolutely futile, and recent statistics indicate that this conclusion has a general application at the present time. In 1928, Katzenstein,[3] of Berlin, reported on 169 cases of transcervical fracture treated by conventional methods. Good results were attained in 11·6 per cent., a percentage which, according to Axhausen, who discussed the paper, represented fairly the general experience. In a recent report of 136 medial fractures treated at the Charity Hospital in Berlin, reported by Hübner,[4] bony union was attained in 6 per cent. and passable function in 17 per cent.

The abduction method, utilising anatomical instead of artificial mechanics, is adequate both to correct deformity and to appose displaced fragments securely; to assure, in other words, the essentials of functional repair in a comprehensive sense. Its technical efficiency can hardly be questioned, at least from comparative standpoint, since it may be demonstrate on the cadaver, at open operation and by X ra pictures. Its application to the living subject, howeve simply because it was in accord with the treatme of all other fractures, seemed from the convention or static standpoint, a hazardous experiment both life and limb, for which the adventurous surgeo who disregarded all established precepts might b called to account. Gradually, however, by a proces of infiltration and disintegration, the obstacles progress have been overcome, and what was originall a logical inference has been amply confirmed practical experience—namely, that, because of th greater physical, mechanical, and nutritive obstac to success that this fracture presents, the result more directly determined by the efficiency of t treatment than is that of any other injury of its clas

In 1927 Löfberg[5] reported on 176 cases of medi fracture treated by the abduction method. B union and good function were attained in 67·5 cent. Reggio[6] has recently reported on 49 cases medial fracture of a most unfavourable type at the Massachusetts General Hospital; 40 per ce of the patients were over 70, yet union was att in 66 per cent. of the cases in which it was ca to a conclusion. This presents a striking to an investigation of final results by Scudder at same hospital in pre-abduction days, in which it stated that in but two of the 16 cases examined the limb functionally useful. Henderson,[7] of t Mayo Clinic, in a series of 42 cases, reports bony uni in 90 per cent. of the patients under 60, and in per cent. of those above that age. He concludes classing all deaths as failures, a proportion of per cent. and 54 per cent. respectively may considered as fairly representing the prognosis.

At a recent symposium on the treatment of medi fractures, Anschütz,[8] of Kiel, expressed the opinio "that any other treatment than by the abductio method was irrational and absurd." Mosenthal of Berlin, said that there could be no discussion the relative merits of a treatment that had, acco to published statistics, raised the percentage of b union to 75 per cent., and in his own practice to per cent. of the cases. He concluded that the obstacle to its general adoption was inability to its requirements.

Restoration of Function.

Thus far, only the transcervical fracture has b considered, because its alleged incapacity for is the actual basis of the conventional routine comprehensive sense, since it is generally assum to be the "true" or characteristic type, partic in old age. In 341 cases investigated by Stebbin however, 230, or 77 per cent., were extraca although the average age of the patients, who inmates of a poor-law infirmary, was 69 years.

Yet in this type of fracture, although union assured, the correction of deformity, other than the extent that may be automatically effected traction, is rarely attempted.* In fact, f other than capacity for locomotion, has received consideration, either in the primary treatment after-care or even in the analysis of the what has been assumed to be the inevitabl disability. For, to quote a British authority, " to say if our melancholic patient has really returned to normality or is only pretending to have done so with a view to early discharge—it may even be with the concealed determination to commit suicide if such discharge takes place.

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* "Local treatment is limited to making only so reduction of the shortening as can be expected by traction, and to immobilisation by traction, or by cushions by a fixed dressing."—Keen and White's American Text-book Surgery, Philadelphia, 4th ed., 1903, p. 368.

Cases 10, 11, 13, 18, 19, 26, 27, 36, 40, and 41 constitute a group of 10 melancholics, who, in spite of apparent depression, give a normal or only slightly abnormal H.I. It was some considerable time before an explanation of these apparently anomalous results offered itself. It was Case 18 which gave the first clue. Here was a woman, apparently extremely agitated and depressed and, at first sight, under considerable emotional tension, whose H.I. was quite low. In making a critical examination with a view to discovering in what way this patient differed from the usual melancholic, one was struck by her histrionic behaviour, which suggested that there was a considerable hysteriform element in her psychosis. That this clue was significant is supported by the fact that this hysteriform element has been found to be very generally associated with a low index, and that it was always present in melancholics with a low index. It is, of course, a moot point whether the hysteric actually feels the emotion he proclaims, or whether there is absence of depth in his emotion owing to absence of the secondary reverberatory phenomena associated with emotion. This latter hypothesis was postulated by Golla in his Croonian Lectures of 1925, and findings corroborative of it have been obtained by one of us (McCowan, 1926). As this hypothesis seems to fit in very well with the present findings, it may be permissible to attempt to bring it into agreement with the more generally accepted hypothesis of Jung—that the hysteric is a feeling extrovert, the contention being that the hysteric, far from being devoid of emotion, actually guides his life by it. It may be admitted that the hysteric is a feeling extrovert, but with the proviso that his emotions are not accompanied by the usual secondary reverberations due to vasomotor and other changes. This gives him his well-known feeling of voidness of emotion and want of inner satisfaction; and this, in turn, brings his thinking into play to tell him how he should feel and behave in any given circumstances; but, as he is a feeling extrovert, it follows that the thinking thus aroused comes from his unconscious and is, consequently, primitive and undifferentiated. It is characteristic of phenomena which derive their driving power from the unconscious that they are unadapted and archaic; and certainly this fits in well with the symptoms manifested by the melancholics under discussion.

Work being done in the psychological laboratory at the Cardiff City Mental Hospital by Dr. M. R. Lockwood on several of the patients in the present series is showing that the psychogalvanic reaction runs parallel with the H.I. It is being found that the hysteriform melancholic, like the ordinary hysteric, fails to give evidence of emotion as recorded by the psychogalvanometer.

The following case is illustrative of this type of patient.

CASE 18.—Married. Aged 41. Housewife. Admitted Jan. 10th, 1929, with history of recent onset.

Diagnosis: agitated melancholia.

Physical: nothing of note.

Mental: house-proud woman, who had severe blow to her pride when her husband lost a good position owing to some petty swindling. A week prior to admission she developed delusions that her husband was unfaithful, did not want her and was trying to poison or hang her. She cut her wrists in what she pretended to be a suicidal attempt, and was continually praying for herself and others. She gradually improved for three months, but then relapsed into an acutely agitated state with all her former symptoms greatly exaggerated. She required tube-feeding at times; self-pity was very prominent, and her praying and agitation were very theatrical and much exaggerated when anyone was present. The unconscious motive of her psychosis was probably a desire to escape from a mode of life and a husband she had come to hate. This was her condition when her sugar-tolerance test was done on Dec. 18th, 1929. Her H.I. was 8. She was emotional and disturbed during the experiment. On repetition later her H.I. was 0.

She continued extremely agitated until her death from lobar pneumonia on Jan. 26th, 1930.

The prognosis in the cases of melancholia who have given a consistently low H.I. is of interest. Excluding Cases 36 and 41, who are aments whose attacks of depression were merely expressions of the Adlerian "will to power" and almost bordered on malingering, there are left eight cases whose psychoses have run an extremely bad course. While the number of cases is much too small on which to dogmatise, certain it is that we at our hospital have come to regard a persistently low H.I. in an agitated melancholic as of extremely bad omen. Death or chronicity has been the invariable fate of such cases.

(*b*) *Emotional state at time of test.*—The following case shows very well the importance of the emotional state of the patient at the actual time of the test. While in the majority of the cases the mood of the case is such that the H.I. is fairly constant from day to day, the following patient's emotions were in such a labile state at one period of her illness that it was possible to test the result of a temporary emotional upset.

CASE 7.—Married. Aged 46. Housewife. Admitted May 10th, 1930, with a history of seven months' illness.

Diagnosis: involutional melancholia of reactive type.

Physical: nil of note.

Mental: appears to have worried much recently about her mother's death in a mental hospital and over the drinking propensities of her husband.

On admission she was full of self-pity and at times very agitated and emotional. She insisted that her husband had had her "put away" for his own purposes. This was her condition on May 10th, 1930, when the H.I. was 40. She improved quickly, and soon showed little sign of depression or anxiety, though still very resentful against her husband. This was her condition on June 4th, 1930, when the H.I. was 0. She was much quieter and more settled than during the last test.

She was taken out "relieved" on June 27th, 1930, but returned on July 14th because she had become very depressed and agitated, threatening suicide if not returned to hospital. She soon settled down, and maintained that her relapse was due to her husband's drinking habits, that he had come home the worse for drink every night and insisted on sharing her bed. She felt she would relapse if again returned to him. This story was corroborated by her daughter.

On Sept. 24th, her H.I. was 0. She was quiet and coöperative during the test. About this time she always became very distressed when her relations with her husband and her return to him were discussed, and it was decided to see if this had any effect on her sugar-tolerance curve. Accordingly, a test was done on Oct. 22nd, 1930, and her H.I. was normal. On the following day the test was repeated; but before the test was begun her relations with her husband were fully discussed, in order to stir up any emotional tension relevant to this. Her H.I. then became 100.

Her husband committed suicide shortly after this, an event which quite pleased the patient, who thought it would make life more pleasant for herself and family. At this time, viz., Nov 19th, her H.I. was found to be 10. The next day the test was repeated, following a discussion of her future, but on this occasion there was no clinical upset, and the H.I. was 13. On Dec. 10th her H.I. was 0. This test was done just prior to her going on a period of trial, to make certain that the prospect of leaving hospital no longer caused the emotional upset which it had done when her husband was alive.

MANIA.

Most workers state that in mania sugar tolerance after glucose ingestion is normal. This is not altogether true. We have found in the cases investigated (Table II., Cases 42–47, both inclusive) that,

menstruation on the H.I. of some of our patients, and the results obtained clearly demonstrate how entirely unreliable must be regarded any blood-sugar work on psychotic women where the effects of menstruation have been overlooked. Seven patients were investigated, and in six the H.I. was found to be higher during the menstrual as compared with the intermenstrual period—and this, irrespective of the type of mental disease present. Table V. shows the effect of menstruation on the H.I. of these seven patients.

TABLE V.

Case.	Diagnosis.	Intermenstrual H.I.	Menstrual H.I.
4	Invol. melan.	38.	86
22	Recent melan.	12, 0.	78
34	Recurr. melan.	31.	80
35	„ „	17.	40
36	„ „	0. 0.	0
42	Melan. and mania.	77.	100
75	Dem. paranoides.	0.	21

With the exception of Case 34, menstruation had no noticeable effect on the mental state of these patients.

VACCINATION.

Vaccination is done as a routine prophylactic measure at our hospital, and it was thought of interest to see how this, as representative of an extraneous type of complication, would affect sugar tolerance. Table VI. gives the effect on the H.I. of the three patients tested. The vaccination had no apparent effect on the mental state of these patients, so that the raising of the index cannot be due to an increase of emotional tension.

TABLE VI.

Case.	Diagnosis.	H.I. apart from vaccination.	H.I. during vaccination period.
28	Recent melan.	12.	33
51	Benign stupor.	14, 0, 0, 0, 0.	100
76	Dem. paranoides.	0, 0.	35

TOXÆMIA.

During the course of this investigation it became apparent that some of the anomalous results obtained, especially in the schizophrenic group, were due to the presence of toxæmia; and it is a permissible surmise that some others were due to an undiscovered infection, though, as previously stated, the probability is that in schizophrenia endocrine imbalance is the more usual factor in giving a raised index in the absence of emotional tension. The following case shows clearly the possible effect of toxæmia.

CASE 53.—Single. Aged 28. Housework. Admitted April 18th, 1929, with a *history of some months'* illness. Diagnosis: hebephrenia.

She was hallucinated, extremely irrational, and largely accessible. She had regressed to a childish state, and was ways playing with dolls and attempting to kiss other tients. The rhinologist reported pus in the right antrum, it was decided to operate. On Sept. 24th, 1929, intra- al drainage of right antrum was performed; left antrum ved mucus on proof puncture; left middle turbinate was ved and ethmoids drained; sphenoids were clear. operative treatment resulted in no appreciable mental rovement, but her physical health improved and her weight eased from 6 st. 7 lb. to 7 st. 8 lb. Her sinusitis not ng cleared up, it was decided again to operate. On the previous to operation—viz., Feb. 10th, 1930, her H.I. 70. After operation she showed some general physical a slight mental improvement. Her sugar tolerance tested on April 16th, and her H.I. had fallen to 5. her improvement only lasted a very few months, and the time of her next test on August 29th, 1930, she had psed to her former mental state; and she now had an unpleasant discharge from her nose and other evidence of a recurrence of her sinusitis. Her H.I. had now risen to 52. There is, therefore, little doubt that in this case the two abnormal sugar figures were due to the toxæmia present.

Conclusion.

While theorising on insufficient premises is to be deprecated, it is permissible to offer a tentative explanation of the parallelism between the emotional tension and the H.I. in manic-depressives. The interference with carbohydrate metabolism is doubtless a secondary phenomenon incidental to the bodily changes which accompany emotion, and the following hypothesis falls into line with the theories of W. B. Cannon on this subject. Emotional tension may be accompanied by an outpouring of adrenalin as a defensive mechanism, and the presence of this substance in the blood would certainly account for a sustained hyperglycæmia after sugar ingestion. Whether the same mechanism accounts for the hyperglycæmia in toxæmia and other conditions and during menstruation is, of course, more doubtful; but it can at least be surmised that the abnormality is due to some endocrine imbalance. Still more is it likely that in dementia præcox we are dealing with various factors in the causation of the abnormal sugar metabolism; though, again, the most likely explanation probably lies in an endocrine imbalance.

Whether this explanation is right or not remains a matter for further investigation. The practical issue, however, is clear—for the parallelism which exists between the emotional tension and the magnitude of the H.I. offers a most useful means of study of, particularly, the manic-depressive disorders. It is most valuable as an aid in following the treatment and the progress of this class of psychotic subject.

Possibly the times at which a determination of the H.I. is of greatest service to the clinician are:—

(*a*) *On admission* of the patient. A high index in a frankly manic-depressive disorder would indicate considerable emotional tension. If the index and the clinical behaviour do not coincide there would be reason to suspect a hysteriform element in the patient, and, from the results stated in this paper, this would indicate a bad prognosis.

(*b*) *Just before discharge* of the patient. The index should be zero on discharge of the patient. Even if the clinical condition would seem to warrant discharge of the patient, it may happen—as shown in this paper—that the index is high; and the discharge of such a patient would be attended with considerable danger. A number of zero indexes obtained prior to discharge of the patient appears to be the most reliable method of indicating recovery.

It is essential in work of this description that the closest coöperation exist between clinician and laboratory worker; for, often enough, an anomalous result is obtained whose interpretation is only clearly seen in the light of the experience of both workers. There is little question that an unexpected result frequently gives a most valuable insight into the mental and physical condition of the patient.

Summary.

1. A study of the sugar-tolerance curves of 85 psychotic subjects has been made.

2. The hyperglycæmic index is defined. It is a quantitative measure of the departure of a sugar-tolerance curve from that found in a normal case. It is an expression of the sustainment of hyperglycæmia found in many psychotic cases. The index is referred to as H.I.

3. It is shown: (*a*) That in the manic-depressive

group there is the closest parallelism between the magnitude of the H.I. and the emotional tension of the patient. Out of 43 melancholic patients examined, only ten gave a normal or slightly abnormal index. An explanation is given for this anomalous behaviour of the ten patients. (*b*) That in the schizophrenic group there is a relatively low incidence of patients (2 out of 29) showing an index consistently greater than 50. High figures in the schizophrenic group are associated with toxæmia, endocrine imbalance, or other physical disorder.

4. In cases of mania a low index is recorded, except when the excitement is accompanied by an aggressive, paranoid mood.
5. In cases of benign stupor a low index has been recorded, showing that the defence mechanism of the stupor reaction had succeeded in abolishing the emotional tension.
6. Arterio-sclerosis per se is not a cause of a high H.I.
7. During menstruation there is a departure from the normal sugar-tolerance curve in both normal and psychotic cases.
8. Practical use is made of the H.I. in determining prognosis, progress, and recovery of the patient.

We would like to express our appreciation of the cordial help given us by the medical officers in charge of the patients, our indebtedness to the Medical Research Council for a grant in aid of equipment, and our appreciation of the services of Mr. A. Dignam.

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SPASMUS NUTANS

(HEAD-NODDING) AS ASSOCIATED WITH DEFECTIVE LIGHTING IN THE HOME.

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THE condition of spasmus nutans, or head-nodding, occurs in infancy, and is usually associated with a peculiar type of nystagmus. Involuntary head movements begin in the great majority of cases when the baby is between 3 and 12 months of age, and usually during the darkest months of the year. The onset of the nodding is preceded or followed by a rapid nystagmus, which may be of lateral, vertical, circular, or varying type. A peculiar feature of the nystagmoid movements is that they are often limited to one eye, or of different types in the two eyes.

The clinical picture is characteristic: a pale and generally rachitic baby of the hospital class, who shows no abnormal head movements when lying flat in the cot, but who, when sat up, commences regular antero-posterior (nodding) or lateral (shaking) head movements, accompanied by any of the types of nystagmus previously mentioned. The movements are lessened or cease entirely when the child's attention is attracted; though the nystagmus frequently persists. Thomson [1] comments on a trick many of these infants have when regarding a fixed object—viz., turning the head away from it and looking at it from the corners of their eyes. The condition is not associated with any evidence of spasmophilia, and recovery is complete, although cases of persistent strabismus have been recorded. The usual course is from six to eight months.

Since the condition usually arises during the period in which the normal infant is learning to control and coördinate ocular movements by means of visual impressions, it has been described as a "functional coördination neurosis" (Thomson [2]). The striking differences which may exist in the movements of the two eyes are understandable on this basis.

In considering the ætiology, many observers have been struck firstly, by the frequent association of the condition with rickets; secondly, by its extreme rarity in children of the well-housed classes; thirdly, by the frequent onset in the darkest months of the year; and, finally, by the fact that there is defective lighting of the child's dwelling-room. Raudnitz,[3] in 1897, was the first to suggest defective light as the causa causans, and his theory has received considerable support, though severely criticised by Still.[4] The latter author reported a series of 34 cases, in 24 of which the rooms appeared reasonably light, and referred to the occurrence of the condition in the child of a medical man living in a well-lighted nursery. It is possible that the position of the child's cot in relation to the source of light may have had some influence on the condition in these cases.

It is of interest in this connexion to compare the condition with that of miners' nystagmus. While this latter is directly associated with defective illumination of the coal-face, the incidence of disability has increased rather than diminished since the introduction of the one-candle-power electric lamp, and those who hold defective illumination as the primary cause of the condition have suggested (Roche [5]) that this apparent anomaly is explained by dazzle and after-image phenomena. A similar explanation might hold for spasmus nutans developing in children continuously exposed to direct dazzle—e.g., from a skylight placed directly above the cot of a child in an apparently well-lighted room. The most generally accepted theory of the mechanical causation of miners' nystagmus is that in dim light "the eye must move 15 or more degrees from the mid-point to obtain the image of an object" (Cooke [6]), since under these circumstances the retina functions by means of the rods rather than the cones, and no rods exist at the fovea centralis. Prolonged exposure to defective light results in nystagmus from loss of voluntary control of the extrinsic eye muscles involved. The nystagmus of spasmus nutans is closely comparable, but here there is, instead of a *loss* of voluntary control, a failure to establish it. In the course of time the growing organism succeeds in doing so, and recovery takes place.

CASE RECORDS.

The following four consecutive cases are reported as exemplifying the clinical phenomena of the condition, and also its very close relationship to defective lighting.

Case 1.—Male, fourth child, mother and father and one sibling alive and well. One sibling died of pneumonia, one at six weeks (? cause). No miscarriages or stillbirths. Breast-fed for three months, then given a cow's milk formula with added sugar. Since birth the baby has been kept in a top back room, from which the light was almost entirely cut off by a wall five feet from the window. The room was so dark that the gas had to be lighted at any time of the day when the mother was attending to the baby. The baby lay parallel to the window, with face toward the gas. When he was three months of age (at the end of March, 1930) the mother noticed the onset of lateral head movements and nystagmus. These still persisted when the child came under observation on account of broncho-pneumonia at 11 months of age. At this time there was almost continuous nystagmus when the child was sitting up, and intermittent head movements. The nystagmus was principally of lateral type, though occasional vertical and oscillatory movements occurred, and it appeared to be equally marked in both eyes. The child was extremely pale, and showed evidence of severe rickets.

July, 1931: Now aged 1 year 4 months. His general condition has greatly improved; eye and head movements have ceased.

Case 2.—Female, first child. Family lives in two small basement rooms, the baby having been kept since birth in the back room, which is the darker of the two. The baby lay with her head toward and feet away from the window, most of the light being shut off from her cot by the mother's bed. When taken out of doors she was left in the pram with the hood up at the bottom of the area. At 10 months old (during March, 1930), patient was noticed to have unilateral nystagmus of the left eye. Nystagmus was of lateral type, and was never seen to occur in the right eye. Patient was brought to hospital in July, 1930, and, at that time, was found to have severe rickets. Admitted to Carshalton with gross genu varum deformity.

When seen in June, 1931, aged 2 years 3 months, the nystagmus had entirely ceased; there was then no evidence of active rickets.

Case 3.—Male. Patient had been kept since birth in a back room of a basement flat, the mother's bed being between the cot and the window. Head-nodding commenced at the end of January, 1931, when the baby was 9 months old, and when he had not been taken out of doors for over five weeks on account of pneumonia. When seen in May, 1931, the baby was very pale, with severe rickets. The head was "nodded" antero-posteriorly when the child sat up, and the nodding was associated with rapid lateral nystagmus affecting both eyes equally. When the child's attention was attracted he looked at the object out of the corners of his eyes; the nystagmus did not appear to be lessened by this, but the head movements became definitely less marked. The mother had typical Hutchinsonian teeth (upper incisors) and defective eyesight, but refused a blood-test on herself or the baby. The latter, who was born of a first pregnancy, showed no stigmata of syphilis.

When seen two months later, after antirachitic treatment and change of dwelling, the baby appeared considerably improved, and both the head-nodding and nystagmus were very much less marked.

Case 4.—Female. Youngest of seven children; all siblings well. Family lives in dark two-roomed basement flat, the parents' bed standing between the baby's cot and the window. The patient had been kept in the house almost continuously, owing to bad weather, for several weeks before the onset of symptoms. She was brought to hospital at the age of 3½ months on account of head-shaking and nystagmus, which had been noticed since the age of 2 months. (The onset of the symptoms occurred in January, 1931.) When first seen (March, 1931) she showed early rachitic deformities, with lateral head and eye movements, which were almost continuous when she was sitting up, but varied considerably in range; both eyes were equally affected. Vertical nystagmoid movements also occurred, but infrequently.

Patient was given open-air and antirachitic treatment, and at seven months (July, 1931) all evidence of the condition had disappeared.

COMMENT.

It is clear that each of these infants had been kept in a dim light for a considerable time before the onset of symptoms; this is the most outstanding feature in the four cases. Three of the children occupied basement rooms, and the fourth a top back room, dimly lit by a window facing an adjacent wall, and requiring artificial light in the daytime. The occurrence of the onset of head movements in two of the cases was somewhat later in the year than is usually described (January and February being the most usual months). It is doubtful, however, if either of these infants were taken out of the house at all frequently during March. In each case there was associated rickets, and recovery took place as the rickets improved. Caution must be observed, however, in attaching too much importance to antirachitic treatment in the cure of spasmus nutans, since it must be remembered that the condition is self-limited, and improvement would doubtless have taken place during this period in any case. As previously suggested, it is probable that increasing power of coördination was developed with increasing age.

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CONSECUTIVE AUTOPSIES OF UNUSUAL INTEREST.

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The aphorism that good things never come singly is nowhere seen to better advantage than in the post-mortem room. Pathological rarities are not uncommonly seen twice in one day, and then not again for years. A student watching post-mortems on one day only may think that the heart or the spleen are the commonest situations for secondary deposits of growth. Such days occur in the experience of every pathologist, and the following seven cases occurred in two consecutive days of post-mortem work in Lambeth Hospital recently. The total number of autopsies performed on these two days was 12, and the five cases which are not quoted here were all of such interest as would have enlightened a day devoted to myocardial degenerations and cerebral hæmorrhages, but shine with lesser brilliance among the galaxy here presented.

SPONTANEOUS RUPTURE OF AORTA.

Case 1.—A male, aged 49, had been admitted to hospital complaining of a sudden severe pain in the left side of the chest and down the spine. The pain had started at mid-day, and as the day drew on he had nausea, but no vomiting, and became short of breath. He was admitted at 11 P.M. the same night; he was found to have dyspnœa on exertion. The apex-beat of the heart was just inside the nipple line. There was a harsh systolic and a diastolic (to-and-fro) murmur at the base. There was an apical systolic and a faint murmur between the second and first beats. The blood pressure was 97/60. There was a previous history of epilepsy for many years, and the Wassermann test was negative. The patient still had dyspnœa next day, and in the early hours of the following morning he died in his sleep.

Post-mortem examination revealed about a pint of blood in the pericardium and much extravasation of blood round the base of the aorta and the pulmonary artery. There was a transverse tear through the base of the aorta, on the posterior surface, about half an inch above the cusps of the valves. The tear was linear, and involved only the intimal and medial coats of the artery, and gave the impression of having been made by a knife. The adventitia had been stripped cleanly from the media by blood, as in a dissecting aneurysm. The blood had spread up and down between pressure on July 21st was 224/150 mm. Hg. On the 23rd it was 232/144. On the 29th both antra and ethmoidal sinuses were washed out by the Watson-Williams technique. No exudate was found and bacteriological examination was negative. The walls of the sphenoidal sinuses were too dense to enter. Repeated colon irrigations showed muco-pus, at first in dense masses and finally in moderate amounts only. On August 11th he was discharged at his own request. He was still thin and sallow. His blood pressure on that date was 240/150 mm. Hg. There was some anxiety and the feelings of inferiority persisted. There was, however, very little depression. He looked forward to returning home and getting outdoor work.

This seems to be a true case of essential hypertension. Treatment was not followed by nor was the improvement in the mental state associated with any alteration in the hypertension.

My thanks are due to the visiting staff for their assistance and to my medical superintendent, Dr. T. C. Graves, for kind permission to publish this case.

SUDDEN DEATH FROM INTERSTITIAL CARDIAC HÆMORRHAGE.

By Frewen Moor, M.C., M.D. Camb.,

PHYSICIAN TO MARGATE AND DISTRICT GENERAL HOSPITAL.

On Dec. 28th, 1929, a lodging-house keeper aged 68, single, complained of pain in the right chest, due apparently to bruising of the chest wall; further examination showed that the heart was hypertrophied, the apex being 4½ in. from the mid-line. The pulse-rate was 92 regular, and the blood pressure 184/110. The apical first sound was booming and the aortic second accentuated; there were no murmurs. The arteries were palpable but not tortuous; there was no œdema.

On questioning, she admitted that she got "chest ache" on walking, and seldom went out on that account. However, she went on with her usual work, which in the summer involved seven strenuous days a week starting at 5.30 A.M. I saw her in the middle of August of this year, when visiting another patient in her house, and she told me she was rather tired and intended to consult me when the season was over.

On August 28th she got up at 5.30 A.M. as usual, and remarked to her maid that she felt very fit; she did her usual work and at 7.50 A.M. came into the kitchen and sat down; the maid asked if she had chest ache again, but she replied "No, I am all right," whereupon her head fell back and she expired; there was no convulsion.

Post mortem the heart was somewhat hypertrophied and the left ventricle dilated; valves normal. There were no atheromatous plaques in the aorta, and the orifices of the coronary arteries were open; the proximal 1½ in. of each coronary was calcareous and greatly stenosed, so that it was not possible to pass a probe, but no thrombus could be seen. On opening the auricles an area nearly ½ in. in diameter on the lower part of the interauricular septum on the right side was slightly discoloured, and on incising the endocardium an ecchymosis was discovered which had stripped up the endocardium for a short distance.

There were plaques of atheroma on the cerebral vessels, but no hæmorrhage into the brain. The kidneys and other organs appeared healthy.

For sudden death to occur in a person enjoying good health, one would expect a small vascular lesion in a vital centre—small because there would not be time for it to get large, and vascular because of its suddenness; or there might be a sudden failure of physiological function, such as ventricular fibrillation (in which case there would be no specific morbid anatomy although the condition has been seen in the post-mortem room). The vital centre in the brain is the medulla and pons, and hæmorrhage in this situation causes sudden death; in the heart the vital centres are the coronary arteries and the conducting tissues. In the present case death was apparently due to hæmorrhage into the auriculo-ventricular node, causing sudden and complete heart-block, from which the ventricles failed to recover. One might have expected convulsions, as in the Adams-Stokes syndrome, but they were not observed.

ILEOCOLIC INTUSSUSCEPTION PROLAPSING THROUGH THE ANUS.

By Patrick K. Dixon, M.D. Dub.,

OF THE GARANGANZE EVANGELICAL MISSION, CHIBAMBO, ELISABETHVILLE, BELGIAN CONGO.

On March 17th a native was brought to hospital with a mass of intestine appearing at the anus. It is exceedingly difficult to get an accurate history from natives but it seems that the prolapse had been evident for at least 24 hours before admission, if not for 48 hours, and that he had had abdominal trouble for about a week. The prolapsed mass was very œdematous and the mucous membrane was gangrenous in parts. No opening could be made out on its summit. Spinal anæsthesia was induced and the œdema squeezed from the mass. It was replaced into the rectum where it could be felt to hang more or less freely. Pelvi-rectal intussusception accordingly was diagnosed and the abdomen opened by a left paramedian incision. A little free fluid was found but no obvious intussusception. The lower part of the sigmoid colon was thickened and felt boggy, while the upper part and the descending colon appeared to be drawn tight and felt hard. It was then assumed that a very large polypus of the rectum had prolapsed and had drawn down with it a large amount of hypertrophied mucous membrane. (The colons of some of these people are frightfully damaged by old dysentery and such a condition of affairs is not inconceivable.) Weight was lent to this opinion by the fact that a stomach-tube (the only rubber tube available) could be passed up beside the lump as far as the splenic flexure. Aided by the fingers of an assistant introduced into the rectum a large part of the prolapsed material was "milked" back and the tension on the upper part of the colon largely lessened. The patient's pulse was quite fair after the operation.

The patient made a normal recovery from the operation. There was no pain or distension. He was fed on the ordinary invalid food which is thin porridge. He had incontinence of fæces, but the motions appeared fairly normal. They contained a good deal of mucus and some sloughs of mucous membrane.

The patient's general condition did not improve, but there was no marked disimprovement. On March 30th, a surgical colleague having arrived, it was decided to excise the "polypus." *Spinal anæsthesia* was again induced. On pulling down the "polypus" an opening was now plainly evident on its summit and my colleague, not unnaturally, doubted my denial of pelvi-rectal intussusception. It was obvious that the caput of the intussusceptum had to be excised. On cutting through the outer layer of bowel the first thing that appeared was the vermiform appendix. The operation was completed by suturing the inner layer of the bowel to the outer and simply replacing it in the rectum, but the shock of this further operation was too great for the patient and he died 12 hours later. It was not possible to obtain a post-mortem.

In this case an ileo-colic intussusception lay in the rectum for at least 14 days without causing either gangrene or obstruction. Further, although the mesenteric nerves must have been pulled on, there was no marked shock.

BRITISH MEDICAL ASSOCIATION.

ANNUAL MEETING IN EASTBOURNE.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

AT the final meeting of this section, the President, Mr. EARDLEY HOLLAND, in the chair, a discussion on

Endometrioma

was opened by Prof. DONALD DOUGAL (Manchester), who pointed out that it was ten years since Sampson first described the condition and presented a general survey of information gained from his personal series of 137 cases. Endometriosis he defined as the pathological state whereby fragments of endometrium leave their proper site in the uterus and develop elsewhere. Endometrioma was the name used for the growth which formed when the tubular glands surrounded by a cellular stroma began to grow in a foreign tissue. The characteristic and essential feature of these tumours was the bleeding into their substance which took place with each menstrual period. A series of lantern slides of photomicrographs were shown comparing the histological appearance of an endometrioma with that of normal endometrium in the different stages of the menstrual cycle.

In 1908, Prof. Dougal said, Cullen studied diffuse endometrioma, or adenomyoma, of the uterine wall and formulated his diverticular theory, but this theory could not explain all cases. In 1921 Sampson flood-lighted the subject by showing that retrograde menstruation through the Fallopian tubes could cause fragments of endometrium to be scattered over the pelvic cavity. The ovary and the recto-vaginal space offered the best site for growth of the implants. The ovary had no peritoneal covering, and the raw area left by a rupturing Graafian follicle readily permitted engrafting of endometrial tissue. The ovary acted as a "hot-bed" for the graft, and the largest endometrial tumours and tarry cysts were met with in the ovary. The irritating menstrual blood caused an inflammatory reaction, and these cysts became surrounded by dense fibrous tissue. Removal without rupture from an ovary was impossible. The endometrial tissue ran in seams through the ovarian substance, and rendered total removal of the ovary necessary. The cyst sometimes ruptured spontaneously and caused a further cellular spill over the pelvic peritoneum.

A series of slides was shown representing the various naked-eye and microscopical appearances encountered. Special mention was made of the multiple purple patches and puckered areas sometimes seen on the peritoneum. Prof. Dougal distinguished a type which invades the recto-vaginal septum, and which may form purple polypi in the posterior vaginal fornix, and another which may involve the wall of the rectum and transform it into a mass of fibrous tissue, fixing it to the posterior wall of the uterus. Such growths were often mistaken for carcinomata of the rectum. He classified his 137 cases as follows:—

	Cases.
Diffuse endometrioma of uterine wall	9
Cornual endometrioma	6
Ovarian endometrioma	44
Recto-vaginal septum endometrioma	44
Ovary and recto-vaginal septum endometrioma	34

Fibroids were present in 40 per cent. of his cases, and were of clinical importance in 27 per cent. Of all fibroid cases, 10 per cent. were associated with endometriomata. The fibroid possibly increased the likelihood of retrograde menstruation, especially in single women. Infection had no influence in causing an endometrioma to develop. The condition appeared during menstrual life; 90 per cent. of cases were between 30 and 50 years of age. It was much commoner in married women. In his experience 11 per cent. of all laparotomies were done for endometrioma. The symptoms were those of abdominal pain (in 40 per cent. of cases), and increasing dysmenorrhœa or epimenorrhœa (in 31 per cent.). Dyspareunia was a frequent complaint, and might be very severe. Rectal symptoms were sometimes present, and occasionally a patient complained of shooting or "electric" pains in the leg. Sterility was frequent; 75 per cent. of his cases had no child for five years preceding the operation. On examination the uterus was often found to be enlarged and less mobile than usual. Sometimes it was retroverted and firmly adherent to a mass in the pouch of Douglas. Nodules were sometimes felt in the posterior vaginal fornix. The treatment was complete removal of uterus and all ovarian tissue. It was dangerous to leave an ovary behind in any but a very early case, and even then recurrence often took place. Operation might be of extreme difficulty because of the adhesions and infiltrating nature of the growth, but end-results were very satisfactory. Total hysterectomy gave better results than subtotal.

DISCUSSION.

Dr. R. M. MANWARING-WHITE (Northwich) gave details of a case of extreme dysmenorrhœa where, at operation, a large mass was found fixed to rectum and uterus. The patient continued to have some dysmenorrhœa after the operation, but this disappeared after treatment with deep X rays.

Dr. MALCOLM DONALDSON (London) quoted a case of endometrioma of the recto-vaginal septum successfully treated by radium.

The PRESIDENT also spoke of the value of radiation treatment, and described a case where the use of intra-uterine radium had been followed by almost miraculous results.

Mr. FRANK COOK (London) asked how an endometrioma of the umbilicus could arise on the cellular spill theory.

In reply, Prof. DOUGAL said that he had no experience of radiation therapy. The treatment was always radical; the ovary could be removed by surgery, or destroyed in situ by radiation. An endometrioma of the umbilicus might possibly arise from a fragment of endometrial tissue being carried upon the fundus of the bladder.

The Pelvic Brim.

Dr. KATHLEEN VAUGHAN read a paper on the shape of the pelvic brim as a determining factor in childbirth. She showed tracings of the inlet of the pelvis reproduced from specimens in the R.C.S. museum. She emphasised the great variety in shape, especially in women of different races. For a given circumference the shape of the brim was of utmost importance. The suboccipito-frontal diameter of the child's head was round, and a round pelvis could therefore allow a larger head to pass than one of any other shape. The shape of the pelvis depended on the habits and customs of the woman. The sacro-iliac joints should be well formed and freely movable. This was found in women of native races who were accustomed to the squatting position. Specimens illustrating this point were shown, including an innominate bone found during excavations at Ur of the Chaldees. Women in this country who did heavy manual work, such as fisherwomen and gypsies, had easy labours, while women in industrial towns had difficult labours. Negro women usually had easy labours, but in New York they had more difficulty than the white women during parturition. Prolonged labour was most often due to the pelvic brim being other than circular in outline. The slight flattening usually present was pathological and due to minor degrees of rickets, and making young girls sit long hours on benches in school.

Dr. Janet M. Gray (London) spoke of the appalling obstetric conditions found in India. Among the high-caste Brahmin women of the United Provinces Cæsarean section was often necessary, while in the Marathi district, where similar women were allowed more freedom, this was almost unheard of.

Prof. Dougal pointed out that among native women there was often probably a greater concentration of pressor substances in the blood, and this was another factor in determining the ease of labour. Prof. Blair Bell had suggested that primary inertia, secondary inertia, and tonic contraction of the uterus could all be explained on these lines.

In reply, Dr. Vaughan emphasised the harmful influence of civilised life and habits on the shape of the pelvis. An extreme example was the weaver [illegible]s in Bombay. The wives were kept in seclusion [illegible]k rooms, and quickly developed osteomalacia. [illegible] were not for the constant coming in of new [illegible]en from the country the race would quickly die out. In this country insufficient thought was given to the development of the child before puberty.

Shock following Accidental Hæmorrhage.

Dr. O'Donel Browne (Dublin) read a paper on shock following blood extravasations with special reference to the treatment of accidental hæmorrhage. It was stated that shock could follow blood extravasation, but this, he said, occurred only in special instances, and depended largely on the rate of reabsorption. A toxic substance probably formed in the clotted blood. The first warning of the onset of shock was a fall in blood pressure, and when this pressure fell to a low level renal and general disorders occurred. A persistently falling blood pressure in spite of treatment by means of salines, morphia, pituitrin, and ephedrine, was of very serious import, and efforts should be made to localise and remove the effusion as soon as possible. Prophylactic treatment by salines, morphine, and ephedrine was of the utmost importance. By its use as a routine procedure cases might be rendered operable which otherwise would be killed by interference. In event of labour not starting after the above treatment puncture of the membranes, administration of pituitrin, and plugging of the vagina should be performed without delay, provided that the blood pressure was not below 80 mm. Hg. Below this level, unless marked rise of pressure was soon noticed, Cæsarean section should be performed. Dr. Browne insisted that the patient's condition and the degree of shock could be best estimated by the routine observation of blood pressure.

The paper was discussed by the President, Dr. Donaldson, and Dr. Ethel Townend (Hull), who dealt with the pathology of shock.

In reply, Dr. Browne pointed out that his work was done entirely from the clinical standpoint. In answer to a question he said that the improvement, seen in cases of accidental hæmorrhage after a fœtal leg had been brought down, was due to the escape of blood imprisoned in the uterus, and also to the compression of the placental site. Many cases of so-called accidental hæmorrhage were, he added, in reality mild undiagnosed cases of placenta prævia.

SECTION OF ANÆSTHETICS.

At the second meeting of this section, the chair being taken by Dr. S. T. Rowling (Leeds), a discussion on

Carbon Dioxide After Anæsthesia

was opened by Dr. J. Ross Mackenzie (Aberdeen), who based his remarks on 5000 cases. The advantages of this gas, he said, were its prophylactic and curative action in post-anæsthetic respiratory complications, no matter what anæsthetic was used, and the protection it afforded to patients with existing respiratory disability. He had given his recent cases carbon dioxide during induction and during recovery for periods of five minutes at four to six-hourly intervals for 24 to 36 hours. The nuclei of origin of the vagus were profoundly disturbed by afferent stimuli from the anæsthetic or operation, owing to their proximity to the respiratory centre, and acapnia in every degree resulted. Acapnia brought the lungs to rest in deflation; hyperventilation with carbon dioxide kept them in continuous inspiration, and stimulated the activity of the cilia, bronchial peristalsis, pulmonary drainage, and the expulsion of exudates. Serious respiratory sequelæ were very rare if hyperventilation were maintained for 24 hours after operation. As a curative agent carbon dioxide was slightly less powerful, and administration must be commenced on the earliest evidence of respiratory sequelæ. It would not prevent cough, pain, and temperature if catarrh and pathogenic organisms were already present, but it would minimise the risk. It relieved the pain felt in abdominal wounds on deep breathing. The only effect of two hours' inhalation of 6 per cent. carbon dioxide was diuresis and increased acidity of the urine.

The Chairman remarked that the prolonged administration of carbon dioxide in nursing homes introduced several practical difficulties. It was necessary to instruct nurses in the use of the apparatus, the weight of which was a severe drawback to its popularity.

Dr. F. T. Evans (London) recommended carbon dioxide in the treatment of refractory hiccough, quoting an illustrative case. He asked if any harm were likely to arise from its prolonged administration.

Dr. R. J. Clausen (London) pleaded for simplicity of apparatus. The "Carbetha" (Siebe, Gorman and Co.) automatic apparatus, he thought, was the best, but the engineering side lagged behind the technical side.

Dr. Mackenzie in reply stated that prolonged administration did no harm at all, because the respiration was increased to maintain a definite percentage of the acid in the blood.

Premedication.

Dr. E. S. Rowbotham (London) defined premedication, or basal narcosis, as a method of rendering the patient unconscious in bed before the administration of the anæsthetic and said that it was no longer necessary for a patient to witness the preparations for his operation, to inhale until the last threads of his dissociating consciousness finally broke, and to awake, reeking of anæsthetic, to hours of vomiting. Insufficient recognition had been given to Gwathmey for recognising the importance of abolishing pre-operative fear. Since his rectal oil ether method, paraldehyde, avertin, and the barbiturates had been introduced. Paraldehyde would only produce unconsciousness in young children and very old and debilitated subjects; morphine or some other drug must be added. After discussing the dosage, he went on to say that with avertin excitement was rare, and the patient quickly went to sleep in a natural manner, but narcosis progressively deepened for another 10 or 15 minutes. It was quieter and deeper than that of paraldehyde and the patient was relaxed. Contra-indications were few and restlessness and vomiting rare.

The barbiturates were essentially hypnotic drugs. The more toxic the compound, the smaller the dose required and the quicker the effect produced, the shorter the period during which it acted, and the more rapid the elimination from the system. The blood pressure was usually lowered 20 to 30 points after intravenous administration, but often returned to normal within 10 minutes. Preliminary morphine increased the action and also the fall of blood pressure. The barbiturates were probably eliminated by the kidneys after having been broken up by the liver. Thyroxin and caffein were said to hasten the elimination. The three compounds recently employed were: sodium amytal (sodium-iso-amyl-ethyl-barbiturate), nembutal (sodium-ethyl-methyl-butyl-barbiturate), and pernocton (sodium salt of secondary butyl-β-brom-allyl-barbituric acid). They all acted quickly and were very toxic, but sodium amytal was only half as powerful as the others. Nembutal was most pleasant to the patient. Wherever possible the drugs should be given intravenously, as their action intramuscularly, per os or per rectum was delayed. Correct dosage was ensured by running the solution into the vein very slowly (1 c.cm. per minute) while talking to the patient; the administration was stopped directly he lost consciousness. Usually very little anæsthetic was needed and vomiting was practically unknown. Recovery, which took place in from two to six hours, was followed by a long period of drowsiness which might last up to 24 hours.

Dr. Rowbotham preferred paraldehyde for children and nembutal for adults, and regarded them both as eminently safe in expert hands. Combinations of drugs acted more powerfully than single drugs and elimination was easier and quicker. A little morphine, just enough nembutal to induce sleep, and then nitrous oxide and oxygen or ethylene, with a minimum of ether if necessary, gave the patient most protection, least injury, and easy awakening. The administration needed experience, and it would be a great pity if reproach were brought upon basal narcosis by the inexpert.

DISCUSSION.

Dr. Hugh R. Phillips (London) stressed the importance of giving morphia or omnopon, with or without atropine or hyoscine, whenever one of the barbiturates was used. It could be safely administered to any patient over the age of 3, in proportionate doses. In children it was contra-indicated if there was acidosis, kidney disease, sepsis, or shock. Adults should receive a narcotic on the evening before the operation. The best premedication for children was paraldehyde, in solution and not in oil; small doses produced excitement and therefore a full dose should be given. His results with avertin had been satisfactory. Vomiting after nembutal was rare, but a considerable number of patients became excited and even violent. This drug had given satisfactory results with spinal anæsthesia. He thought premedication somewhat overdone nowadays, and quoted good results obtained without it. Nevertheless, it was valuable for nervous patients and those who had to go through a series of operations; for those who should perform voluntary movements on the same day; for feeble patients who must take food early; and for those whose lungs were easily affected. On the other hand, more work was thrown on the nursing staff, for a patient who had been premedicated could not safely be left until he had recovered his reflexes, as the tongue was always liable to slip back.

Dr. I. W. Magill (London) said that basal narcosis was the latest development in anæsthesia and that the anæsthetist had to meet an increasing public demand for it. The surgeon, the general practitioner, the nurses, and the patient's friends should be instructed in the after-effects to save alarm and mistake. He preferred the intravenous route, because the dose was easier to gauge accurately. To children he gave paraldehyde, as the barbituric drugs were variable in their action.

Dr. Ronald Jarman (London) stated that the aim of the anæsthetist was to get rid of the patient's fear of being put to sleep in cold blood. Basal narcosis saved nervous shock and enabled the dose of ether to be reduced or even dispensed with; it would diminish the number of chest cases, do away with vomiting, and reduce shock to a minimum. The smell of paraldehyde had caused complaint and the solution had sometimes been expelled. The method was ideal for a child in a nursing home but unsuitable for a private house. Avertin was, he thought, an ideal anæsthetic and nearly 100 per cent. certain, its only disadvantage being that the patient was slightly restless when induced with gas-oxygen and ether. He had found that somnifane caused severe restlessness, and headaches for the rest of the day. Nembutal was excreted much more quickly than sodium amytal, but its action by the mouth was uncertain and patients were apt to be unruly. Premedication required much experience and vigilance.

Dr. Evans maintained that the patient feared suffocation more than unconsciousness and vomiting. Avertin, and to a certain extent nembutal, were the ideal premedication for children. It was possible, with knowledge and experience, to run in more avertin if the original dose was insufficient, but he did not recommend this. Morphine and nembutal were apt to make the patient drowsy but aware of what was being done; under avertin and gr. $\frac{1}{6}$ morphine the patient slept. Avertin materially reduced vomiting and abolished chest complications. He never gave a spinal anæsthetic if the blood pressure fell 20 mm. after avertin.

Dr. F. B. Parsons (Cambridge) recalled the fact that avertin had been invented as an antispasmodic for whooping-cough; it was a homologue of the trichlorethyl alcohol that was formed in the blood by chloral, and was slightly more potent. He pleaded for examination of the liver after any avertin deaths, which only occurred if morphine had been given. The solution in aniline hydrate caused less disturbance than the crystalline substance.

Dr. Pugin Meldon (Dublin) warmly praised nembutal, which he said had proved harmless in doses of grs. xxvii. and grs. xxx.

Dr. CLAUSEN deprecated forgetfulness of the homely remedies, morphine and hyoscine, which removed apprehension.

Dr. ROWBOTHAM in reply remarked that a diastolic drop after avertin from 90–70 mm. was more serious than a systolic drop from 120–100 mm. A chloretone suppository would help retention in children.

Properties of Amytal.

Dr. R. C. GARRY (Glasgow) read a paper on the pharmacological properties of iso-amyl-ethyl-barbituric acid, which was, he said, widely used as an anæsthetic for experimental animals. For man the dose was 20–25 mg. per kilo of body-weight, intravenous, for complete surgical anæsthesia, and 12–20 mg. would replace 75 per cent. of the volatile or gaseous anæsthetic. It produced post-anæsthetic sleep and drowsiness for 12–72 hours, and therefore increased the necessary nursing attention. There was no post-operative distress. Early workers had claimed that amytal did not affect carbohydrate metabolism, but in fact intravenous glucose was not removed from the blood by the usual route, presumably because of inhibition of the storage of glycogen in the liver. Nevertheless, according to the consensus of opinion, amytal disturbed this function less than the majority of anæsthetics in general use, a fact which might be important when liver damage was feared. It lowered the body temperature and often produced shivering. It did not greatly diminish the minute volume of respiration, and the respiratory centre remained sensitive to carbon dioxide. It had a definitely toxic action on the heart, the more marked the more rapid the administration; the blood pressure fell rapidly and took an an hour or more to recover. Rapid administration was therefore dangerous. In animals the bulbo-spinal reflexes were little affected, and in the cat the inhibitory action of the vagus on the heart was abolished [illegible] several hours. This effect was not comparable to [illegible]t of atropine, because amytal did not inhibit the action of acetyl codein; it might be significant in the use of volatile anæsthetics. The true sympathetic system was unaffected by amytal. Intestinal motility was definitely decreased, and the pylorus was tightly closed, perhaps because of an action on the parasympathetic system. Absorption of glucose, even from the duodenum, was greatly delayed. Amytal did not affect the guinea-pig uterus, and had been employed successfully in obstetrics. It inhibited water diuresis but did no apparent harm to the kidneys.

Clinical Administration.

Dr. H. P. FAIRLIE having taken the chair, Dr. ROWLING spoke on the clinical aspect. The anæsthetist, he said, owed to the patient the duty of anæsthetising him without delay, discomfort, or chill; and to the surgeon the duty of minimising the mechanical difficulties of the operation: the patient must be completely flaccid and have the smallest possible respiratory excursion. The quiet surgeon was as essential a result as the quiet patient. Anæsthesia should be as precise a science as surgery, and the anæsthetic should be definitely prescribed and dispensed, the ingredients being combined in exact dosage. The ordinary ingredients were nitrous oxide, ether, chloroform, oxygen, and carbon dioxide; and the physiological strengths required for anæsthesia were nitrous oxide up to 100 per cent., ether up to 24 per cent., and chloroform up to 3·5 per cent. The maintenance of anæsthesia required much less strength—about one-third—than its induction. It was required to construct an "anæsthetic atmosphere" that would meet the needs of the patient and of the surgeon, and the anæsthetist should be able to write precisely at any moment the prescription for the atmosphere the patient was inhaling.

Ether was safe on the table and dangerous afterwards; chloroform was dangerous on the table but caused no pulmonary complications. Gas, with or without oxygen, was safe, and carbon dioxide was essential for the control of respiration. The first cause of death during administration was ventricular fibrillation; this occurred only under light chloroform. The second and greatest was a cumulative overdose into the tissues from failure to reduce the dose when the patient was under. To prevent chest complications Dr. Rowling advocated induction by chloroform, given from a special vaporiser. Four drachms of chloroform were added to 12 ounces of liquid paraffin—a 4 per cent. solution; the strength of the vapour was between 2·5 and 3 per cent. The specific gravity should be maintained at 0·93. The patient lost consciousness without any choking, because he was receiving oxygen and carbon dioxide in excess and the delicate respiratory tract was anæsthetised before the irritating ether was given. Flaccidity was equal to that obtained by spinal anæsthesia, and respiratory excursion hardly greater. Oxygen in large excess combined with ether and about 3 per cent. of carbon dioxide gave a degree of anæsthesia that had hitherto not been considered safe. Resuscitation was effected by changing the atmosphere to carbon dioxide.

Dr. Rowling exhibited his chloroform vaporiser and his mask fitted with graduated inlets.

SECTION OF NEUROLOGY AND PSYCHOLOGICAL MEDICINE.

THE second session of this section, with Sir JAMES PURVES-STEWART, the President, in the chair, was devoted to a discussion on

Suicide.

Sir HUBERT BOND said he had long been impressed by the almost complete failure to realise the existence of medical problems in every case of suicide, coupled with the fact that most of these problems required for their right handling an adequate knowledge of mental disorders. It was a great mistake to treat an individual case entirely on socio-legal lines and ignore or mishandle the medical or psychological aspect. He would protest against the practice frequently made of putting questions, at inquests or in magisterial proceedings, as to the existence of insanity or of instances of suicide in other members of the family. Apart from the legal aspect of such evidence being admissible and however valuable medically such information might be, thus to catechise persons as to insanity or suicide *in their family* was surely to seek it in the wrong manner and in the wrong place. The practice spread ill-founded, possibly false, doctrines as to the influence of heredity in the causation of suicide and mental disorder; it often caused deep pain and distress. Some cases of suicide were indeed caused by ruminating on this very point. It was a fact that throughout the whole of his collection of records of suicides and attempted suicide there was not a single instance of evidence of enlightened inquiry as to what steps were taken by the relatives to prevent the occurrence by securing adequate treatment, nor in the case of attempts was there a single instance reported of insistence on adequate medical treatment. Under the Mental Treatment Act there was complete opportunity to organise thoroughly effective treatment.

In works on psychiatry, comparatively brief notice only was taken of suicide; the subject was in need of renewed and further study from a symptomatological and psychological standpoint. Such study should include careful inquiry, with the aid of trained social workers, into the environment, circumstances, and personal history of the series of consecutive cases. There was a popular idea that suicides had of recent years been increasing at a disturbing rate, especially among young people; careful examination of statistics, however, did not bear out this contention. Statistics regarding suicide could perhaps be said to date from 1750 as to Sweden and 1783 as to Switzerland and Paris. Most of those subsequently published, few of which were earlier than the second quarter of the nineteenth century, were collected under the well-known book of Morselin of Turin which might be said to include all available data up to 1876. For subsequent information upon the subject, especially as regards this country, various books, papers, and articles were available. Facts as to sex- and age-incidence, mode of death, &c., were confirmed by Sir Hubert Bond's own statistics, which comprised the number of suicides which occurred in England and Wales during each of the four census years, 1891, 1901, 1911, and 1921. For these four years the ratios of suicides per 10,000 population were 1·3, 1·5, 1·5, and 1·5 for males and 0·4, 0·5, 0·5, and 0·5 for females, and for both sexes together 0·9, 1·0, 1·0, and 1·0. The sex proportion, therefore, was almost exactly 3 to 1

PSYCHOPATHOLOGY.

Dr. H. **Crichton-Miller** said that no discussion of the subject could go very far without considering motivation. Statistics gave only the conditioning factors. Suicide was a failure of adaptation and constituted a final regression from reality. The motives underlying suicidal acts were numerous and complex; it was impossible to ascertain them with any degree of certainty unless we were intimately acquainted with the patient's psychic life. It was convenient to group the motives under three headings: (1) physical pain, including frustration of instinctive demands; (2) social sufferings and fears; (3) doubts and dreads pertaining to the hereafter. As regards the first group, acute pain did not seem to impel suicide as frequently as some of the gross discomforts. Still more noteworthy was the fact that men committed suicide more frequently on account of anticipated pain than actual suffering, however acute. Civilised man appeared more capable of adjusting to physical pain than to anticipatory dread of it. The fear of insanity also deserved to rank among the major causes of suicide. In the prepsychotic stage a person might pass through a phase of suicidal tendencies, yet when the psychosis declared itself in a delusional manifestation the suicidal impulse might disappear completely. As regards "frustration of instinctive demands," it was probably true that more suicides had been occasioned by thirst than by hunger. In normal civilised life, however, it was the sex instinct which met with most frequent frustration and which in consequence accounted for the largest number of suicides in this group. Both men and women committed suicide on account of homosexuality, but in these cases the issue was almost always confused and could rarely be classed as mere instinct frustration. Conflict over homosexual tendencies, fear of social discovery, repressed inferiority —these and similar factors came into the ætiology. Many suicides were attributed to insomnia. The high degree of respectability which belonged to this complaint made it an eminently suitable explanation for mourning relatives, coroners, and journalists. It was, however, a very unsatisfactory explanation for the psychopathologist. In the second group—social sufferings and fears—the motivation was usually simpler and less liable to misinterpretation. Suicide on account of bankruptcy, loss of employment, legal proceedings, &c., all revealed the extent to which herd values might eclipse the instinctive desire to live. Doubts and fears regarding the hereafter tended to have an inhibitory effect but that effect waned as dogmatic religion embodying a system of eternal rewards and penalties lost its hold on the community. There were also many other important aspects of the subject with which time did not allow the speaker to deal—viz., the frankly psychotic suicides—especially the melancholics and cyclothymics —which were primarily problems of supervision rather than of active therapy.

MEDICO-LEGAL ASPECT.

Dr. W. **Norwood East** pointed out that suicide in English law was a felony—self-murder. Both coroners and juries usually attributed suicide to insanity, and out of 4846 inquests on suicides in the year 1928, a verdict of felo-de-se was returned only in 88. If the alternative verdict to felo-de-se was suicide the result of mental illness, the modern outlook and phraseology of the Mental Treatment Act, 1930, would be represented. An analysis of 1000 consecutive cases of attempted suicide examined by Dr. East some years ago showed that only about one-fifth were certifiable as insane, and the experience gained by the examination of more than 2000 additional cases confirmed this view. The association of murder with suicide was important. The criminal statistics for England and Wales in the years 1927 and 1928 showed that about one murderer out of four committed suicide. In some insane persons the suicidal intention preceded the homicidal; thus the altruistic melancholic, having decided to kill himself, first kills his wife to save her from disgrace and suffering.

DISCUSSION.

Dr. L. A. **Weatherley** considered that Dr. Crichton-Miller had laid too much stress on the sex instinct and its frustration as a potent cause of suicide. When insomnia was a prominent symptom it needed prompt and definite treatment. It was sad to reflect that while relatives showered blessings upon the physician who relieved the patient of physical pain, he who attempted to get rid of mental pain and induce refreshing sleep was often stigmatised as the creator of a drug-habit. The speaker had known many men whose only hobby had been their business and their only society their business friends give up their work and retire to some town where they knew nobody. They did not play games nor read; they ceased to have an interest in life and were liable to become depressed and even commit suicide. The "herd instinct" in such cases must be educated and improved. That grand old refrain "The more we are together the happier we shall be," sung so lustily as we metaphorically blew the froth of depression to the four winds, implied the adoption of this instinct. Although golf and tennis might be too expensive or too strenuous, there was one game they could play—bowls. He had seen many miserable lives made happy in the atmosphere of friendly and sociable amusement on a bowling green.

Dr. **Aubrey Lewis** said that an explanation of suicide in terms of comprehensible behaviour was inadequate. One had to consider the make-up of the individual and the biological changes as well as the external circumstances. The relative importance of these factors varied greatly in different groups —e.g., the psychotic and the psychopathic suicides. The biological changes defied purely psychological investigation. With regard to social influences, stress must be laid upon the ethical values prevailing in the particular social group; on the positive side one found heroes and martyrs, on the negative side fanatics and self-immolators. Epidemics of suicide deserved attention; their incidence was chiefly on psychopaths, as might be seen in several common factors in such outbreaks. Dr. Crichton-Miller's remarks concerning insight and the fear of insanity leading to suicide applied only to a particular group; it was a question not of insight but of the continuance of morbid anxiety. From the point of view of psychopathology it was not justifiable to regard death by voluntary starvation as a suicidal equivalent; the fasting was generally the expression of beliefs and dreads not connected with any positive seeking after death. Revenge and hatred were very important factors in the motivation of suicide.

Dr. N. E. **Waterfield** approached the question from the point of view of cases coming under his own observation in the tropics and in England. He divided those cases into (1) those whose motivating cause was *fear*—fear of the consequences of some criminal or other act. In such cases, if the original attempt was not successful, there was a probability that the attempt would be repeated. He did not consider that fear was the cause of suicide in murderers, but that the double act was the result of the original impulse. The second cause given was "general fed-upness" with the conditions of life. The speaker regarded resort to excessive indulgence in alcohol as an attempt to secure oblivion and that, in his experience, not infrequently preceded suicide. The third cause, which more frequently resulted in attempted suicide than the accomplished act, was the desire to attract sympathy or notoriety. Dr. Waterfield gave examples of cases coming under his observation in all three groups.

Dr. G. W. **Scott** (Malay States) described a case of suicide resulting from a series of misfortunes and gave an outline of the arguments by which he tried to dissuade the man concerned from committing the act.

Dr. E. F. **Hoare** said that he was glad to find a section of the medical profession interested in the subject of suicide. He had kept a record of the cases of suicide coming under his jurisdiction as coroner for East Sussex and had grouped them (*a*) according to apparent causes, and (*b*) according to method adopted. Causes with relative figures were as follows: mental disease, 26; domestic and financial worry, 20 (18 of which were males); disease or dread of disease, 13; "insomnia," 7; love disappointments, 4; grief, 4. Methods adopted were: coal-gas poisoning, 16; drowning, 16; hanging, 11; precipitation from heights, 10.

The **President** considered that we should be sceptical as to the value of statistics with regard to suicide. Official figures almost certainly under-estimated its incidence. To be of value, statistics *should include not only the successful suicides, but* also the cases of attempted suicide. These figures were obviously unobtainable, since many cases of attempted suicide are not recorded. The larger one's experience of suicidal patients, the more one was impressed with the importance of inquiring for an hereditary tendency to mental disorder, and hereditary influences could only be appraised by securing information as to the whole family tree for several generations. Suicide and attempted suicide were most often symptomatic of underlying mental disorder. It must not be forgotten that there was a class of suicide by perfectly sane people—e.g., felo-do-se. Many non-criminal suicides in sane individuals were condoned by Church and State. To this class belong the "noble army" of religious martyrs; also the equally meritorious cases of people who deliberately sacrifice their lives for the benefit of others.

Dr. R. G. **Gordon** considered that the origin of suicide was something deeper than the product of symptoms such as insomnia. It was probable that the understanding of suicide must arise from the study of the psychological make-up of the individual. If the personality were harmoniously organised, suicide would be an impossibility. Was there any means of recognising these cases which were not capable of such harmonious organisation in order that we might discern potential suicides and undertake preventive treatment when necessary?

Dr. **David Rice** referred to another group of accidental or non-intentional suicides who resorted to self-injury as a physical counter-irritant to pain —physical or mental—with fatal results. Cases he had seen of successful starvation had been proved to have serious disease of the gastro-intestinal tract which the speaker looked upon as sufficient reason for refusal of food. This condition had been undiagnosed before admission and was inoperable when discovered.

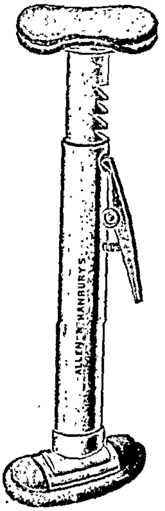
Dr. **John Birch** maintained that suggestion was of much greater importance than heredity in the incidence of suicide. He related instances of consecutive suicides in a certain locality coming under his personal observation in support of his contention. He also *considered that there was a definite relation between* tuberculosis and suicide.

Dr. F. R. P. **Taylor** drew attention to the value of social workers in assisting those who had been inmates of mental hospitals. These workers at out-patient clinics might do a great deal to assist potential suicides.

NEW INVENTIONS

A JAW SUPPORT.

With an artificial airway in position it is often necessary and sufficient to hold the chin up in order to obtain a free air passage while administering an anæsthetic. For this purpose I have devised the simple adjustable prop here illustrated. This fits between the clavicle below and the mandible above, and is pulled out to the length desired, where it automatically fixes itself by means of the rachet. The ends are grooved and padded to fit the bones, and the upper end is made to rotate so that it can come into line with any part of the ramus. It is sometimes necessary to hold the prop in position by means of tape tied round the neck.



The instrument has been made for me by Messrs. Allen and Hanburys, Ltd., 48, Wigmore-street, London, W.

G. A. Metcalfe,
Bedford. M.B., B.Chir. Camb.

REVIEWS AND NOTICES OF BOOKS

Dangerous Drugs.

The World Fight against Illicit Traffic in Narcotics. By ARTHUR WOODS, formerly Police Commissioner in New York City, and Assessor to the Advisory Committee on Traffic in Opium and Other Dangerous Drugs of the League of Nations. New Haven: Yale University Press. 1931. 9*s.*

THIS volume, published under the auspices of the United States Bureau of Social Hygiene, owes its origin to the experience obtained by its author while acting as assessor to the League of Nations Advisory Committee on Opium. The disclosures there made of the "astounding conditions in the clandestine drug trade" led Mr. Woods to emphasise the measures which must be enforced if this narcotic drug traffic is to be controlled. The author sketches the history of the use of opium, morphine, heroin, and cocaine, their physical, mental, and moral effects, the growth of the abuse of these drugs of addiction, and the insidious extension of the illicit commerce therein. Morphine, first isolated in 1803, gained a high reputation for its anodyne and soporific properties, and its hypodermic administration, dating from 1853, extended alike its use and its abuse. Heroin since 1898 has had wide therapeutic recognition, but soon also became a drug of addiction, and popular with the underworld. Mr. Woods, unlike most writers on the subject, does not regard heroin as more perilous than morphine. While he thinks that cocaine does not enslave its addicts as morphine does, it leads to more marked physical degeneration, and finally to dangerous violence and unnatural practices.

The author's experience with the New York City police invests with authority his conclusions on the antisocial effects of drug addiction. He says that narcotic addiction undermines the energy and will of the addict, and brings on a state of indolence and dependance wherein the normal methods of earning a living are abandoned, though the necessity for money grows ever more pressing with the need for larger and larger amounts of the narcotic. In this way the use of the narcotic becomes closely interwoven with other criminal activities of the underworld habitués, and drugs become a part of a vicious circle of social corruption. Mr. Woods relates the efforts made since the Shanghai Commission of 1909, by means of the Opium Conventions signed at The Hague in 1912, and at Geneva in 1925, to effect the international control of drugs of addiction. These have been duly recorded in our columns from time to time, and we have also drawn attention to the disastrous illicit commerce in these drugs which still continues, and which led to the recent conference at Geneva on the limitation of their production. Mr. Woods believes that the only remedy is drastic action by each nation, and universal action by all nations. The disclosures at the last Geneva Conference confirm the author's assertion that a rigorous continuous supervision of narcotics by each nation through every stage in their production, manufacture, and marketing is required. Great Britain, by its Dangerous Drugs Acts of 1920–25, has endeavoured faithfully to fill its obligations under The Hague Convention of 1912, both as a producing and consuming country. On the other hand, such prolific producing countries as Turkey, China, and Persia have not hitherto ratified the Opium Conventions, while some continental countries continue to manufacture morphine, heroin, and cocaine grossly in excess of any conceivable medical or legitimate requirements.

Mr. Woods's brochure is a well-informed and well-balanced statement of the world fight against illicit trade in narcotics.

Bioassays.

A Handbook of Quantitative Pharmacology. By JAMES C. MUNCH, Director of Pharmacological Research, Messrs. Sharp & Dohme; Pharmacologist, Bureau of Biological Survey, U.S. Department of Agriculture. London: Baillière, Tindall and Cox. 1931. Pp. 958. 45*s.*

THE importance of the physiological assay, or bioassay, of drugs whose chemical constitution is unknown, or whose activity cannot be indicated by chemical methods, is shown by the considerable volume of the literature which has sprung up round the subject in recent years. There has inevitably been much unnecessary duplication of effort due to ignorance of the published work of previous investigators. The author of this book has set himself the important task of reviewing the whole literature published prior to Jan. 1st, 1930, and of preparing a critical compilation of the known facts of quantitative pharmacology. In the preliminary chapters he deals with experimental technique and the interpretation of results; and in succeeding chapters considers drugs according to their predominant pharmacological action. An important chapter is devoted to the bioassay of glandular products, and another to special types of drugs, such as anthelmintics, biological products, and vitamins. The author has set out the orthodox view, and has also noted his own experiences, and mentioned which methods appear to him most useful. From the 17,000 references which he had to tabulate and abstract, he gives over 5000 quotations, which in his view contain definite information or mark progress in the development of bioassay methods.

The book can be commended as an important and valuable work of reference.

A Treatise on Hygiene and Public Health.

Seventh edition. By BIRENDRA NATH GHOSH, F.R.F.P. & S. Glasg., Examiner in Hygiene, University of Calcutta and State Medical Faculty of Bengal. Revised and largely rewritten with the advice and assistance of A. D. STEWART, M.B., F.R.C.S.E., D.P.H., D.T.M. & H., Lieut.-Colonel, I.M.S., Professor of Hygiene, Calcutta School of Tropical Medicine. Calcutta: Scientific Publishing Co. Pp. 728. 10*s.* 6*d.*

IN this seventh edition of Dr. Ghosh's book on hygiene considerable revision has been made. Some of the discredited views to which we drew attention in reviewing the previous edition have been deleted, and on the whole the book seems now to be well up to date. Chapters 24 and 25 on village sanitation will be of special value to those concerned with hygiene in the tropics, and more especially in India. Like its predecessors, this manual supplies a remarkable amount of information, and it can be recommended to those who desire to study the problems of hygiene as they are presented to the administrator in India.

Tropical Hygiene.

Fourth edition. By P. LUKIS and R. J. BLACKHAM. Revised and enlarged by A. D. STEWART. Calcutta: Thacker, Spink and Co., 1931. Pp. 427. 5s.

THIS useful little book is intended for laymen as well as medical practitioners. Its chapters include sound elementary facts, served in a palatable form, which are neither beyond the comprehension of lay reader of ordinary intelligence nor beneath the notice of the practitioner young in tropical experience. All the chapters contain sound practical advice, together with some account of the ætiology and historical aspects of the diseases treated and the theoretical basis of the sanitary measures advocated. The book is amply illustrated with photographs and diagrams, and its only fault is that it is too much compressed.

Précis d'oto-rhino-laryngologie.

Par GEORGES LAURENS, Laryngologiste de l'Hôpital Saint-Joseph. Avec la collaboration de MAURICE AUBRY, Laryngologiste des Hôpitaux, et ANDRÉ LEMARIENZ, Assistant de laryngologie. Paris: Masson et Cie. 1931. Pp. 1224. Fr.120.

Dr. Georges Laurens and his colleagues have succeeded admirably in giving a concise account of diseases of the ear, nose, and throat. Even the rarer conditions receive adequate mention, and small points in diagnosis and treatment are rarely omitted. The authors have wisely avoided the tabular form of presentation, and the text is readable in spite of condensation. Operations are, of course, not fully described, but their principal features are indicated. The sections on treatment are, on the whole, the most condensed; and it would have been helpful to set out the method of administration and the dosage of the drugs mentioned.

The work is well up to date, and the methods of treatment recommended are generally sound, though they differ somewhat from those prevalent in this country, notably in the recommendation of partial tonsillectomy in children. The method of tonsillectomy with the blunt guillotine, described as the Sluder-Ballenger operation, is said to be of American origin, and the earlier work of Whillis and Pybus in England is not mentioned. The authors state that treatment of cancer of the larynx by radium has been abandoned because of its uselessness and its dangers. The numerous illustrations are mostly semi-schematic drawings; they are clear, and of real assistance in following the text. There is a good index.

Diseases of the Gums and Oral Mucous Membrane.

Fourth edition. By Sir KENNETH GOADBY, K.B.E., M.R.C.S., D.P.H., Lecturer on Bacteriology of the Mouth, Dental Department, University College Hospital. London: Humphrey Milford, Oxford University Press. 1931. Pp. 496. 42s.

THE borderline between odontology and general medicine has not received the attention it deserves from medical men or from dentists. This book skilfully unites the specialised and the general aspects of dental disease. The present edition has been revised and extended by over 80 pages. A new chapter on dental caries shows that the author accepts Mrs. Mellanby's view that caries is a deficiency disease. Recent work on the relation between vitamin A and pyorrhœa receives attention in the chapter on disease of the dento-alveolar articulation. The chapter on the bacteriology of the mouth has been rewritten and brought up to date, and that on vaccine therapy, a subject with which the author is particularly associated, is a moderate statement of the claims and limitations of vaccines in the treatment of diseases of the periodontal membrane. The illustrations are numerous and good, the number of coloured plates having been increased in this edition. The drawing which illustrates actinomycosis of the jaws is specially good. The book will continue to make an appeal both to the dentist who wants to learn something of various morbid conditions of the mouth, and the practitioner of medicine who wants to read about dental disease without being led into highly technical avenues.

A Manual of Normal Physical Signs.

Second edition. By WYNDHAM B. BLANTON, M.A., M.D., Assistant Professor in Medicine, Medical College of Virginia. London: Henry Kimpton. Pp. 246. 12s. 6d.

Dr. Blanton's small volume on normal physical signs is designed primarily to aid the student in his work in the wards. It is arranged in schematic form for the sake of brevity. The main points in anatomy and surface anatomy are included, with some 49 diagrams and figures. It is questionable to what extent such purely tabulated collections of methods of examination and their uses are of assistance to the junior student; certainly they can in no way take the place of actual instruction in the wards. Some of the methods are described imperfectly, some are ignored. Thus we find under gall-bladder, "duodenal tap of some value, Murphy's sign, Hook fingers over ribs and note inability to breathe," cryptic remarks well calculated to mystify the student. The patient who is told the 14 rules to be observed by him when submitting to auscultation is likely to become restive; the last of 11 tabulated sources of error during auscultation is "trouble with stethoscope: (*a*) one tube occluded, (*b*) one tube broken or cracked, (*c*) held upside down." Such minutiæ tend to obscure important principles and lessen the value of an otherwise useful little volume.

Les premiers jours du nouveau-né.

By Prof. MARCEL METZGER and Dr. ANDRÉ HÉRAUX. Paris: Gauthier-Villars et Cie. 1931. Pp. 444. Fr.40.

THIS book restricts itself to the infant during the first fortnight of life, and enters into the physiological and pathological features of this period in greater detail than would be possible in a less specialised work. It is divided into four sections. The first is concerned with normal infants, and deals fully with management and hygiene, and with the initiation of breast-feeding. The second contains an account of diseases and congenital malformations, dealing with the differential diagnosis of symptoms, such as jaundice. A valuable section follows on the clinical manifestations of pathological heredity, with special reference to syphilis. The book ends with a series of short summaries of individual cases seen by the authors, accompanied by temperature and weight charts. It should provide a useful guide to students and practitioners engaged in midwifery.

THE LANCET.

LONDON: SATURDAY, OCTOBER 3, 1931.

BLOOD-SUGAR IN PSYCHOSES.

THE studies of sugar tolerance in psychotic subjects published at p. 731 of our present issue should be of great interest to psychiatrists, because they throw light on a perplexing series of observations. The whole story of recent research into the bodily symptomatology of mental disorders is well illustrated by the investigations of carbohydrate metabolism recorded during the past few years. Not only metabolic abnormalities but disturbances of the endocrine organs and of the vegetative nervous system have been reported with a frequency that implies that they have some pathological significance, but also with such inconstancy that attempts to build them into any systematic pathology appear to be hopeless. Such observations as those of Dr. McCOWAN and Mr. QUASTEL, and those on respiratory and acid-base disturbances lately made by other workers, give these findings a new significance. In studying the psychoses, to look for static signs of bodily disorder such as we are accustomed to find in the diseases of general medicine, is probably to look in vain. We cannot hope to obtain reactions equivalent to the Wassermann or the agglutination tests as permanent distinguishing features of forms of mental disease. If such static differences are present they are probably too minute to be demonstrated by our methods. It is not to the static but to the dynamic aspect of the disorder that research must be addressed. Put the psychotic organism to some stress—whether it be metabolic or emotional or stimulation by drugs, inhalation of carbon dioxide or by hormones—and the response will usually be found abnormal. In a collection of any observations the fortuitous occurrence of some conditions of stress inevitably gives rise to the abnormal conditions which prove so puzzling when they are scattered among a series of apparently normal measurements.

Dr. McCOWAN and Mr. QUASTEL have examined the relation of the blood-sugar curve to the emotional state and to the bodily concomitant of emotion evidenced by the so-called psychogalvanic reaction. They find a close correspondence between the results obtained by the two methods in so far as emotional states are concerned. By both types of reaction a needful check is afforded on the reality of a state of emotional stress. Their work seems to confirm the observation that the external manifestations of emotion cannot always be taken at their face value, especially in the hysterical mode of reaction. From their results it appears that the abnormalities of the blood-sugar curve found so often in manic-depressive psychoses are in the main a bodily manifestation of emotional stress, and that the variations may afford valuable prognostic information. The expression of these abnormalities in terms of a hyperglycæmic index may arouse some antagonism, for it must not be forgotten that the figures expressing ratio which they characterise by this name do not bear a simple relation to the degree of retardation, and cannot be legitimately used for simple comparison. There should, however, be little difficulty in constructing a mathematical expression of the varying delay in reaching a normal blood-sugar level.

The significance of the disorders of carbohydrate metabolism in the psychoses has yet to be fully explained; but meanwhile Dr. McCOWAN and Mr. QUASTEL have given a new orientation to part of the problem, and their results, if confirmed, will have much practical importance.

FOOD POISONING.

IT seems from Sir GEORGE NEWMAN's report[1] that there has been some diminution lately in the number of outbreaks of food poisoning in this country. Not all such outbreaks are reported to the Ministry of Health, but all the larger outbreaks, and most of those in which there is a fatal case, are sure to come to the notice of the medical staff there. In 1930 25 outbreaks were reported as compared with 30 and 45 in the two preceding years; in all but three instances the bacteriological investigations were done in the pathological laboratory of the Ministry. Although full details are not given of any of the outbreaks it is evident that the same features crop up year after year. Made-up meat foods are, as usual, the commonest vehicles of infection, and the report incriminates pork pies in several outbreaks. An unusual feature in one of these was the spread of infection through many districts. The veal-and-ham and pork pies had been distributed very widely, producing outbreaks in districts as far as 200 miles apart; 105 cases of more or less severe illness were reported in all, with two deaths. At least 45 pies were suspected of having conveyed infection, all belonging to the output of one factory on one particular day. The *aertrycke* bacillus was found in the pies and in the excreta of the sufferers. Gelatin has been suspected from the time of EDWARD BALLARD (1890) and in last year's outbreak suspicion fell on the practice of adding a solution of gelatin to the pies after they had been cooked and cooled. There was a possibility in this instance that the prepared gelatin solution left overnight had been infected by the droppings of birds, but the source of infection is still the weak link in the chain of evidence. There is great need, the report states, of information as to the precise method by which food becomes contaminated with these bacteria and particular attention should be paid to any material, the examination of which might reveal the existence of reservoirs of infection. The present report adds nothing to our knowledge in this direction.

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[1] On the State of the Public Health. Pp. 181–4. Annual Report of the Chief Medical Officer of the Ministry of Health for the Year 1930. H.M. Stationery Office. 4s.

On the other hand, knowledge of the bacteria concerned in food poisoning is steadily growing. The number of types of the salmonella group associated with such attacks is indeed bewilderingly large and adds materially to the difficulty and labour of investigation. In the present report a new type "Newcastle" is mentioned as responsible for an outbreak of three cases of mild poisoning at Hove due to pickled beef. This type had been described previously in Berlin, but hitherto had not be associated with any such outbreak. The American type of *B. suipestifer*, conveyed by a pork pie, was responsible for eight cases with three deaths at Walsall. Apart from a single fatal case at Wolverhampton in 1927, this was the first appearance in England of this strain in connexion with food poisoning. Altogether the 25 outbreaks were responsible for 292 cases of illness and 16 deaths. In six outbreaks *B. aertrycke* type was identified, in two *B. enteritidis*, and in one each the types "Newcastle" and American *suipestifer*. In one case in which no definite history of food poisoning could be elicited the Thompson type was identified in the pus of an empyema. In five outbreaks no living pathogenic bacteria could be detected in any of the material examined. These were toxin outbreaks which showed the almost invariable features—viz., very short incubation period, symptoms of moderate severity, very rapid recovery. The other striking characteristic, very abrupt onset, is not mentioned. They were ascribed to canned salmon (two outbreaks), tongue, canned beef, and canned lobster, there was considerable doubt as to the ætiological connexion of the last vehicle in an outbreak which involved 40 cases. Excluded from the list were eight outbreaks of gastro-enteritis, due to the Flexner group of dysentery bacilli, in which various articles of food were suspected. One outbreak is ascribed to ice-cream, and the report adds, "it is not easy to draw a clinical and epidemiological distinction from food poisoning; the bacteriological findings alone warrant the separation." Dysentery bacilli were first described as a cause of food poisoning by W. G. SAVAGE and P. BRUCE WHITE, and unless a bacteriological definition is to be given to food poisoning there seem no good grounds for not including them, when food is the vehicle, as outbreaks of food poisoning.

The report illustrates the valuable work which is being done in the pathological laboratory of the Ministry of Health. Food poisoning can, however, hardly be controlled until the gaps in our knowledge of the paths of infection and of the precise reservoirs of the salmonella bacilli are better understood. Some of this knowledge should come from thorough investigation of actual outbreaks, but an equally valuable field is direct research into the distribution of these bacilli, particularly in relation to animal diseases. Not very much has been added to our knowledge of recent years from either branch of study, but the second line of approach is suffering from neglect. A recent outbreak of food poisoning at Chesterfield is a reminder of the need for further research.

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HOSPITAL CONTRIBUTORY SCHEMES.

THE most important outcome of the annual conference of British hospital contributory schemes which has just been held at Rugby was the decision to establish a British Hospitals Contributory Schemes Association. There are now so many of these enterprises, they have achieved so high a measure of success, and their number is certain to be so largely increased in the near future that such a measure of coördination and coöperation has become very necessary if the best results are to be obtained. There could be no doubt of the representative character of the conference, which consisted of 110 delegates from 55 towns in all parts of the country, under the presidency of Major B. J. T. FORD, the chairman of the management committee of the remarkable Birmingham Hospitals Contributory Scheme. The objects of the Association are defined as being to encourage the extension of contributory schemes; to institute a clearing house for tabulating information and making suggestions; to prepare model schemes for inquirers; to advise associated schemes in times of difficulty; to be at the disposal of those seeking information when contemplating the establishment of schemes; to publish and circulate an annual report; to form a body representative of the associated schemes, and to arrange an annual conference of such bodies. Major FORD was appointed president, and an executive committee was formed consisting of men of especial experience. The Association ought to be able to do work of real value, especially in the prevention of overlapping, of which there is already some danger, and clearly defining the limits of regional schemes. Large hospitals draw their patients from so wide an area that it is becoming difficult to limit the operation of contributory schemes to merely urban boundaries, yet local jealousies are easily aroused, and may as easily produce unfortunate results.

In a paper on the payment of hospital staffs Sir ROBERT BOLAM declared that the present system is breaking down so far as those staffs are concerned, and that one of its faults is that the general hospital provision for the artisan and lower middle class is "grossly inadequate." As regards the staffs the system is "rotten." "You have compelled them to spend half their time in hospital for nothing, or next to nothing, and then compelled them to go out for the rest of the day and act as extortioners from the people who do not come to hospital. The man is honorary in hospital life and mercenary in private life." Sir ROBERT went on to say that the cost of medical service to the private person is "absolutely absurd, and altogether beyond what it ought to be," and that the profession is satisfied that some other means ought to be adopted for financing the consultant services. He added that "the profession honestly believed that it was best to have part-time service—that the man should keep in touch with the amount of private work that was to be done outside, and that it should be made worth his while to do the most progressive work in the hospital." The discussion on the paper showed considerable divergence of opinion, and no resolution was submitted. The curious question arose of whether contributory schemes should be operated primarily in the interests of the voluntary hospitals or of the contributors. Diametrically opposite views were expressed, and the president pointed out that any scheme was worthless which had not as its foundation a union of interests between hospital and contributor.

THE NATURE OF VIRUSES.

DURING the week two pronouncements have been made on the biological nature of viruses. Dr. H. H. DALE introduced from the chair a discussion on this subject at the Physiological Section of the British Association, and Prof. JAMES MCINTOSH commended it to the notice of students beginning their course at the Middlesex Hospital. The virus is almost as infinitely small as the solar system is infinitely large; the smallest known virus is, in fact, actually smaller than a molecule of hæmoglobin. Nevertheless, as Prof. MCINTOSH insisted, it could still contain a score or more of protein molecules, and its only similarity to a ferment or enzyme is that both can act in minute quantities. A ferment or enzyme cannot, he added, increase or multiply. Dr. DALE, too, remarked that the dimensions assigned to the units of some viruses might well make one hesitate to credit them with the power of active self-multiplication. Experience however provides no analogy for the growth of such a substance by self-synthesis from the constituents of a lifeless medium. He had little sympathy with the suggestion that the presence of the virus in a cell in some way constrains the metabolism of the cell to produce more; and he closely argued the drawbacks to this view, adding a new one to the effect that it would be difficult to imagine that a virus like rabies could be permanently excluded from this country, as it has been, if it had an autogenous origin. In answering the question, what do we mean by a virus? Dr. DALE admitted that definition was more difficult than a few years ago, when it was possible to accept three cardinal properties—viz., invisibility by ordinary microscopical methods, non-retention by a filter fine enough to prevent the passage of all visible bacteria, and inability to propagate itself except in the presence of the cells which it infects. The failure of such a definition to effect a sharp or stable demarcation is, he said, progressive. To be consistent we must include among viruses, on the one hand, the filtrable agents transmitting certain tumours, and, on the other hand, the agents of transmissible lysis known as bacteriophages. Microscopic visibility is obviously a loose term; those who hold by it are tempted either to exclude an agent from the group of viruses as soon as the microscope can demonstrate it, or to regard the minute bodies which are seen or photographed as not really the infective agent but products of a perverted metabolism which its presence engenders.

Accepting this inherent difficulty in defining logically the group of viruses, Dr. DALE set out his own position in the following way.

"The viruses," he said, "seem to form a series; but we do not know whether the series is real and continuous, or whether it is formed merely by the accidental association, through a certain similarity in effects, and through common characteristics of a largely negative kind, of agents of at least two fundamentally different kinds. If we approach the series from one end, and watch the successive conquests of microscopical technique; or if we consider the phenomena of immunity over the whole series; we are tempted to assume that all the viruses will ultimately be revealed as independent organisms. If we approach from the other end, or consider analogies from other examples of a transmissible alteration of metabolism, we may be tempted to doubt the significance of the evidence provided by the microscope, and to conclude that all viruses are unorganised, autogenous, toxic principles. If we take the cautious attitude of supposing that both are right, and that viruses belonging to both these radically different types exist, where are we going to draw the line? Is the test to be one of unit dimension? If so, what is the lower limit of the size of an organism? Are we to suppose that inclusion bodies can only be produced by viruses which are independent organisms? And if so, does this conclusion also apply to the "X" bodies associated with the infection of plant cells by certain viruses? If we try to form an estimate of the lower limit of size compatible with organisation, we should remember that particles which we measure by filters of known porosity, or by microphotographs, need not be assumed to represent the virus organisms in an actively vegetative condition. They may well be minute structures, adapted to preserve the virus during transmission to cells in which it can resume vegetative life. . . . Workers in the cytology of genetics, accustomed to picturing a complex of potentialities as somehow packed into the compass of a gene, may find less difficulty, than does the bacteriologist, in attributing sufficient organisation, for true self-reproduction, even to particles still far beyond the range of detection by the microscope."

Prof. MCINTOSH told the Middlesex students that the science of bacteriology has led to the control of most infective diseases. Dr. DALE told the British Association that the near future seems likely to give us an epoch of not less important discovery concerning the viruses. No one familiar with the work of ROUS and MURPHY and its later developments can, he thinks, doubt that in the advance of knowledge concerning the nature of the viruses in general lies the brightest hope of finding a clue to the secret of the malignant tumours. Even if no new PASTEUR should arise to reconcile scattered and conflicting indications in an order yet unseen, there is prospect of advance along a wide front common to many workers in many countries.

Lord Wakefield last week opened a new X ray department at Hayes (Middlesex) cottage hospital as a memorial to the late Dr. E. J. Parrott, the founder of the hospital.

ANNOTATIONS

INSULIN ACTION AND DOSAGE.

Of recent years in the treatment of diabetes many clinicians have been using diets containing a relatively large proportion of carbohydrate, with a higher dosage of insulin than was formerly advocated. Much larger doses of the hormone have also been tried in the treatment of coma, but it has been found that the rate of fall of blood-sugar and disappearance of ketosis are not proportional to the amount of insulin employed. It appears that small doses of insulin are relatively more effective than large in readjusting the disordered carbohydrate mechanism, and the practical application is that where a single large dose appears inadequate in the treatment of a given case, it may be found that the same total amount given in repeated small doses will bring about the required result. These clinical findings are borne out by the experimental work of F. N. Allan [1] who, working with depancreatised dogs, showed that the dextrose equivalent of one unit of insulin decreased progressively as the dosage of insulin was raised. Similarly in the normal animal during sugar absorption C. F. Cori [2] (using rats) and M. W. Goldblatt [3] (with rabbits) found an actual decrease in liver glycogen after the injection of insulin, suggesting that where an optimum of insulin is already available from a normal pancreas, further amounts cannot accelerate glycogen formation.

The question whether any toxic effects are directly attributable to massive doses of insulin in rabbits protected from hypoglycæmia by repeated glucose administration, and the relative effects of massive and "small" doses on liver glycogen and hyperglycæmia, has lately been investigated by R. F. Loeb, E. G. Nichols, and B. H. Paige.[4] These workers were unable to demonstrate any toxic effects due to massive doses of insulin in seven and a half hours, thus confirming the clinical observation of H. A. Byworth [5] who satisfactorily treated a case of diabetic acidosis with 1715 units of insulin in the course of 36 hours. No definite histological changes were found in the adrenal glands of the animals studied, in contrast to the findings of Poll,[6] who used animals which were *not* protected from insulin shock by dextrose. The figures given for the effects of various doses of insulin on the hyperglycæmia following repeated dextrose feeding by stomach-tube are not conclusive owing to the very great variations between animals in the same group; they appear to show, however, that the effect of massive doses was not greater than that of "small." (The "small" doses used—7 units per kg.—were only relatively so, and were probably actually in excess of the optimum.) The liver-glycogen values were lower in the insulinised animals than in the controls in spite of marked hyperglycæmia, and this agrees with the findings of the authors already quoted.

Present-day theories of insulin action—of which none can be said to explain satisfactorily all the experimental facts—are largely based on the many and elaborate estimations of liver and muscle glycogen which have been carried out on rats and mice by H. W. Dudley and G. F. Marain, C. F. and G. T. Cori, and others. Considerable interest attaches therefore to the recent findings of G. Agren, O. Wilander, and E. Jorpes,[7] who describe a marked diurnal and nocturnal variation in the glycogen content of the liver and muscles of rabbits, rats, and mice. The changes appear to be largely independent of the intake of food, and suggest that in rabbits—where they are most striking—considerable glyco*neogenesis at the expense of the body proteins* takes place during the night. If these results are confirmed, it is possible that much of the accepted experimental work on large groups of rats will have to be revised unless careful control has been exercised with regard to the exact *times of day* at which the estimations of glycogen have been made. It is possible that some at least of the apparent anomalies of insulin action will prove to be explicable on this basis.

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MEDICINE IN THE AIR FORCE.

"The medical services of the Royal Air Force are organised first for the prevention of disease, and secondly for the care and treatment of the sick and injured." And the excellent handbook[8] for medical officers which opens with these words manages to retain a "prophylactic tone" throughout its 238 informative pages. For the general reader the first interest of such a book lies, of course, in the problems which are special to flying—for instance, the effect of high altitude on the airman. Here he will learn that the results of oxygen-lack are usually not appreciated by the subject, who therefore cannot rely on his sensations to tell him whether oxygen administration is necessary. Accordingly precautions must be taken beforehand to make sure that there shall be no shortage. As illustrations of this lack of judgment is mentioned the case, during the late war, of an observer returning from high flying reconnaissance, thoroughly pleased with the success of his flight, who discovered that he had taken 18 photographs on one plate. Another pilot, meeting enemy aircraft at 19,000 feet, cheerfully waved his hand to them, but took no further action despite the protests of his observer. On the physical side we have the well-known effects of high altitude on the tympanic membrane. The drum may be forced outwards during ascent if the Eustachian tube is obstructed, but more usually the pressure is counteracted by opening of the tubes on swallowing, and it is during a rapid descent that the necessary adjustment fails. If the airman has reached 20,000 feet the pressure on landing may be as much as 760 mm. outside and only about 380 mm. within the middle ear, and the drum is therefore forced inwards. The result may be deafness, pain, vomiting, dizziness, or even fainting, and the importance of nasal hygiene which will prevent obstruction is obvious. As the throat is apt to be parched at high altitudes because of mouth breathing, swallowing may become difficult, and the use of chewing-gum is recommended. The mention of this humble preventive is an instance of practical outlook of those who have compiled the manual. The chapters on psychoneuroses and on the methods of spread of infective diseases, as well as the means of investigating suspected cases and making an early diagnosis, are clear and concise, and would be useful to many readers outside the Air

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[1] Amer. Jour. Physiol., 1924, lxvii., 275.
[2] Jour. Biol. Chem., 1926, lxx., 557.
[3] Biochem. Jour., 1929, xxiii., 83, 243.
[4] Arch. Int. Med., July, 1931, p. 68.
[5] Brit. Med. Jour., 1928, i., 801.
[6] Med. Klin., 1925, xxi., 1717.
[7] Biochem. Jour., 1931, xxv., 777.
[8] Manual for Medical Officers of the Royal Air Force. 2nd ed. London: H.M. Stationery Office. 1931. Pp. 238. 4s.

Force. The instructions on the collection of laboratory specimens, their transmission by post, and the particulars which should accompany them, are such as ought to find a place in all text-books of practical medicine. Their dissemination would save pathologists a lot of time, and would make for more efficient diagnosis.

It will be a surprise to many to know that blood-culture is included amongst the routine tests used in any case where the fitness of an airman is in question. It is admitted that, as a rule, the result is negative, but the few early positive cases in which correct and immediate treatment has resulted from its use already justify the test as a routine procedure.

SERO-DIAGNOSIS OF SYPHILIS.

IN 1923 a laboratory conference on the sero-diagnosis of syphilis, convened by the Health Organisation of the League of Nations, was held at the State Serum Institute at Copenhagen. Subsequently several of the sero-diagnostic methods were improved and a number of new tests were elaborated, notably such as depend on changes directly visible in mixtures of syphilitic serum and extract, the so-called flocculation tests. A second laboratory conference was accordingly held at Copenhagen in 1928, attended by 40 pathologists belonging to 17 countries, its purpose being to compare the results obtained by these flocculation tests with those based on the Bordet-Wassermann reaction. At the invitation of the Uruguayan Government this work was continued at a third laboratory conference held at Montevideo last year, the report[1] of which is before us. Seven Bordet-Wassermann techniques (six of which were modifications of the original method) and four flocculation techniques were compared.

The four flocculation techniques were (i) Kahn "standard," (ii) Kahn "presumptive," (iii) Müller "clotting," (iv) Meinicke "clarification." Prof. Kahn himself performed numbers (i) and (ii); (iii) was done by Prof. Müller and his assistant; (iv) by Dr. Jolland-Düssert, of Santiago de Chile. A twelfth method (sero-hæmo-flocculation test of Prunell) was withdrawn in the course of the conference. Out of the 11 methods, seven (six B-W techniques and the Meinicke clarification test) were performed by representatives of various South American countries. The remaining four were methods which, with the exception of the Kahn "presumptive," had been well tried at the previous conferences at Copenhagen, and were carried out by the same workers as at those conferences—namely, Kahn ("standard" and "presumptive"), Müller ("clotting"), and Wyler (B-W modification). During the conference 966 sera and 200 cerebro-spinal fluids were examined, 304 and 147 of which respectively were derived from cases in which syphilis could with reasonable probability be excluded. Each sample of serum was divided up into a number of small samples corresponding to the number of research workers. These samples were distributed for examination bearing only a number, just as had been done at the earlier conferences, so that the serologist was unaware of their origin or of the clinical diagnosis, which was not divulged until all the workers had submitted a written report of their findings.

The results obtained agree with those reached at the Copenhagen conference in 1928, where the best flocculation test was demonstrated to be generally superior as regards sensitiveness, and equal in point of specificity to the best B-W reactions. The majority of the serologists taking part in the Montevideo conference agreed that in the hands of Prof. Kahn himself, the Kahn "standard" test—as was the case at the Copenhagen conference—was the best of the four flocculation tests under trial, being absolutely specific and extremely sensitive with both sera and cerebro-spinal fluids. The Kahn "presumptive," the Müller "clotting," and the Meinicke "clarification" tests each gave a small number of false positive results. Out of the seven complement-fixation methods compared, only three gave absolutely specific results as far as the 966 sera were concerned (Sordelli, Scaltritti, Wyler). In the case of the 200 cerebro-spinal fluids, Wyler had absolutely specific results; the Scaltritti method yielded one false positive result; Sordelli was not enabled to carry out any tests on account of the necessary limitation of the available material.

Comparing the sensitiveness of the two complement-fixation techniques (Sordelli, Wyler) and the one flocculation technique (Kahn), which yielded perfectly specific results, the former, while closely similar to one another in sensitivity, gave about 9 per cent. fewer positive results with syphilitic material than did the Kahn test. It can, however, be seen from the tables embodied in the report that in certain cases of syphilis—about 3 per cent.—the Kahn test gave a completely negative or doubtful result against a definite positive by one or both of the complement-fixation tests of proved specificity. It was therefore urged at the conference that, in order to obtain a greater guarantee against possible errors, it is best to employ two different diagnostic methods, a Wassermann and a flocculation, in parallel. This is substantially in agreement with the recommendations of the laboratory conference at Copenhagen in 1928.

Among the sera submitted to test were 27 from cases of leprosy (nervous, tubercular, and mixed). Detailed clinical examination of these cases yielded no evidence of syphilitic infection. The well-known fact that leprosy often gives non-specific positive reactions in sero-diagnostic syphilis tests was confirmed at the conference in every one of the methods compared. These cases were placed in a group apart, and were not considered as non-specific control cases.

DENGUE AND YELLOW FEVER.

IN 1923 C. Bonne at Surinam suggested that dengue fever might perhaps protect its convalescents against yellow fever. In recent papers in the Dutch medical press J. E. Dinger and E. P. Snijders have noted the similarities of these two diseases, among them the saddle-shaped (double maximum) temperature curve, the muscular pains, the conveyance by aedes, the infectivity of the patient's blood during the first three days of the fever, and the filter-passing character of the virus. They observed, when inoculating monkeys, that cynomolgi from districts in the Dutch East Indies where dengue was endemic were less susceptible to yellow fever infection (except when young) than were rhesus monkeys from North India where dengue was absent. This line of investigation has now been followed further at the Tropical Hygiene Institute at Amsterdam.[1] They were fortunate in finding 14 volunteers willing to be bitten, at Amsterdam, by *Aedes egypti* or *A. albopictus* which had fed on dengue patients in the Dutch East Indies, or by mosquitoes bred in Holland from infected aedes or by aedes infected in Holland from other cases of dengue. Their paper gives a full account of the results. The incubation period was usually three but perhaps up to ten days, the exanthem was associated rather with the second (and higher) peak of the pyrexia, while the blood showed an acute leucopenia with disappearance of eosinophils at the height of the fever. The pyrexia has usually two maxima, but the first may be absent, and after the second the white cells begin to increase rapidly. The authors hold that van Scheer's five-day and Rogers's seven-day fevers are variants of dengue.

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[1] London: George Allen and Unwin. Pp. 131. 3s. 3d.

[1] Arch. f. Schiffs- u. Trop.-Hyg., September, 1931, p. 497.

Dengue is more dangerous to monkeys than to man and of 26 infected animals, 14 died. Six of the deaths were from intercurrent diseases, but the other eight monkeys presented appearances similar to those of yellow fever. The 12 which recovered were infected with yellow fever and one died, after two days, of intercurrent disease, while three died of yellow fever (one had perhaps been given too little time for immunity to develop) and the remaining eight survived. Ordinarily, it is stated, 90 per cent. of monkeys exposed to yellow fever die, but here only three died out of 11 (27 per cent.), and it is concluded that those which recover from dengue acquire pretty often an immunity against yellow fever.

Thus the Amsterdam experiments are held to support Bonne's suggestion, and in Dinger and Snijders's opinion should lessen anxiety about the possible introduction of yellow fever into the Dutch East Indies, where dengue is common. It would be interesting to know whether yellow fever has ever been observed in people lately convalescent from dengue.

CIGNOLIN IN DERMATOSES.

THE introduction of cignolin gave dermatology one of its most useful remedies. Used in the right way for the right case, it is as easily controlled and rapidly effective as any other single drug. Originally synthesised to take the place of chrysarobin—whose composition and action are notoriously irregular—it is apparently free from toxic action on the kidneys, and in weak concentration can be applied even to the scalp without any danger of a secondary conjunctivitis. Although probably the best application in the treatment of psoriasis, it is evidently useful in a variety of other conditions. D. Kenedy[1] reports that in Török's clinic at Budapest it has been used for a number of years for various superficial dermatoses occasioned by fungi and yeasts, in intertrigo due to streptococcal infection, and in so-called dysidrotic manifestations on the palms and soles, which frequently relapse and defy every other known method of treatment, including X rays. The prescription[2] is: Cadogeli, 1·0; cignolini, 0·1–0·2; benzoli, 10·0. The method of application is very simple, the affected areas being painted with the solution twice daily and then covered with strips of dry white gauze. If there is already much eczematisation or irritation, the painted areas are further protected with a thin layer of Lassar's paste, or calamine lotion, while if the paint appears itself to be causing irritation the proportion of cignolin can be reduced by a half or more. The combination of cignolin and tar follows the indications closely, for the former has a powerful parasiticidal action, and the latter is unrivalled for its soothing and antipruritic properties. It will, of course, be realised that the above treatment applies only to the chronic relapsing types of infection, which are well known to be difficult to control and cure. Where there is much sepsis the usual surgical principles must be observed—e.g., opening of bullæ, evacuation of pus, and immersion for short periods in weak antiseptics such as potassium permanganate solutions. Kenedy quotes examples of cures of oidiomycotic, epidermophytotic, blastomycotic, and streptococcal (intertriginous) infection, mostly of the hands and feet, in from two to eight weeks. They had previously resisted all other accepted forms of treatment, including X rays.

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[1] Derm. Woch., 1931, xciii., 1195.

[2] Cadogel, a proprietary tar preparation, cannot easily be obtained in this country, but deodorised oil of cade is a good substitute. A suitable formula would be: Ol. cadini (deod.) ♏ 40; cignolini, gr. ½; benzoli rect., 1 oz. Only small quantities should be ordered, for the tar tends in time to be precipitated.

"LA CURE MARINE."

AN international review bearing this title has recently appeared in Belgium, with an introductory statement by Dr. Armand Delcroix, who has been for more than 30 years director of the Marine Sanatorium at Ostend. Dr. Delcroix's claim is that medicine has, so far, failed to destroy the germs of disease in the body; that hygiene cannot guarantee a pure atmosphere in the towns; that phototherapy cannot replace fresh air; that it is still necessary to have recourse to ideal surroundings; and that the curative properties of Nature must be put on a rational basis. The aim of the review is to bring together from all countries the fruits of medica observation and discovery at the seaside, especially in the case of delicate children, and so to establish what Dr. Delcroix calls a scientific chart for the sea A similar aim inspired the International Congress o Thalassotherapy formed in France in 1914, whic met in May of the present year at Berck-sur-Me and the new section of the B.M.A. at Eastbourn in July.[1] It is true that there has been, in recen years, a great increase in the number of childre sent to the seaside in the summer months, to marin hospitals, convalescent homes, and holiday colonie Many such hospitals, especially those for tuberculo children, are now kept open all the year roun But in spite of an unprecedented recourse to se bathing there is still much ignorance of the la which govern the modification of the organism the seaside. The first number of *La Cure Mari* prepares the way for better understanding by givi a sketch of the modern development of marine trea ment. In 1825 Dubar, a surgeon of Ostend, publish a "Guide for Bathers"; Noppé, in 1832, wro wisely on climatic adaptation; whilst Jumné, in th 'forties and 'fifties, established the practice of seasi treatment. The first marine hospital at Middelker followed in 1885, and the sanatorium at Ostend 1897. In France the first establishment for se bathing was that of Lepec, founded at Dieppe 1778. Baumé, in 1805, recommended sea-baths "the most energetic remedy for scrofula," and François noted in 1812 that girls bathing in the ope sea at Dieppe acquired resistance against th pernicious effects of the flimsy mode of dress the prevalent. Later, Trouville became a favourite sea bathing resort, and then Biarritz, under the auspice of the Empress Eugénie. From that time in France says Dr. G. Léo, dates the era of seaside hospitals an sanatoria "for the disinherited of life." In 185 the city of Paris sent 20 scrofulous children to St Malo for a three months' cure; in 1861 a wooden hospital with 100 beds was erected at Berck-sur-Mer which has since become an acknowledged centre for the treatment of non-pulmonary tuberculosis. Many establishments with the same purpose are now to be found on France's three coasts. In Italy Barollai was the apostle of this branch of physical medicine. According to Dr. Ceresole, of Venice, the first marine hospital was set up by the town of Lucca at Viareggio in 1842, and another for children from Florence in 1854. These early hospitals were open only in summer;

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[1] See THE LANCET, Sept. 19th, p. 637.

the first permanent Italian marine hospitals being again founded for the town of Lucca in 1901. It is said that there are now more than 250 charitable establishments at the seaside in Italy, including permanent and summer hospitals for curative treatment and many preventoria or marine colonies, and that more than 100,000 children are annually referred to coastal health resorts. In this country premier place belongs to Russell's classical work, which appeared in 1750, and among marine hospitals to the Seabathing Infirmary, founded by Lettsom at Margate in 1781. In Germany Beneke, of Marburg, established the first marine hospital at Wyk on the Island of Föhr in 1881. Dr. Carl Häberlin, the present director of this hospital, presented to the Eastbourne section his careful observations made upon large numbers of children from German cities. His conclusion, briefly stated, was that for delicate children cures at the seaside cannot be replaced by anything of equal value. A caveat is however necessary in recommending the seaside for children. The movement for the systematic medical care of subnormal children, which is evident in many countries, has little in common with the vogue of the plage or seashore for popular sea- and sun-bathing. The role of light and water and air in marine climates as a mode of treatment can only be rightly appreciated by patient investigation and experience. We welcome the proposed medical organisation to promote the scientific development of these forms of treatment in the British Isles. The facilities for modern marine treatment in England, both in summer and winter, are one of the undeveloped national assets.

THE TONOSCILLOGRAM.

LAST January in our columns Dr. J. F. Halls Dally[1] drew attention to Prof. J. Plesch's tonoscillograph, an instrument designed to give graphic and permanent records of arterial and capillary pressures, together with individual pulse characters. Since then Plesch has given a much fuller account[2] of his methods, and shows that the possibilities of the instrument have been further developed. Apart from the advantage of having permanent records of blood pressures, he demonstrates on a mathematical basis that it is possible to get the absolute arterial pressures, maximum and minimum, by eliminating errors introduced by variations in thickness of tissues and arterial wall, and that he can thereby obtain more accurate readings than can be got with auscultation. Other points of interest have appeared in the course of his investigations. There seem to be in the tonoscillograph curve two entirely independent components, differing in kind and origin—namely, the pulse curve, a pure resultant of the heart's action, and the development curve, a resultant of the elastic condition of the artery wall. The four characteristic points of the tonoscillogram are maximum and minimum pressures on the one hand and total maximum and total minimum pressures on the other hand. Absolute values and differences between maximum and minimum pressures are constant characteristics of the pulse curve, and therefore the gauge of the important work of the heart. On the other hand, the difference between the total maximum and maximum and total minimum and minimum—these two are the same—gives the measure of arterial wall tension or strain. This latter curve will be altered by early sclerosis, and should therefore provide a means of detecting early changes in the vessel wall. Plesch says that the tonoscillograph is easy to use, and he claims that with the use of this instrument it should be possible to get permanent accurate records of blood pressure. It is to be hoped that other investigators are confirming these results.

ABNORMAL SPERMS AND DIMINISHED FERTILITY.

G. L. Moench and Helen Holt[1] point out that the problem of fertility has too often been attacked from its most abnormal aspect—namely, sterility. Lower fertility rather than absolute sterility is the common reason for an absence of children. The usual test of semen is, they think, inadequate; in other words, the presence of motile spermatozoa does not prove the fertility of the husband. For this purpose the form of the sperms must be considered and the number of abnormal must be assessed. From a series of cases which they have examined, they conclude that in a healthy semen the abnormal sperm-heads do not exceed 19–20 per cent. When the proportion is from 20–23 per cent. impaired fertility can be assumed, while if it is over 25 per cent. there is usually sterility. The kinds of abnormality that they found to be commonest they have classified under the following headings: head changes, abnormalities of the body, thickened and doubled bodies, coiled bodies and tails. In laying stress on these variations, they are advancing an opinion opposed to that held by such authorities as M. Huhner, who wrote "that if a sufficient number of normal actively motile sperms are present in a semen specimen, the presence of abnormal sperm-heads does not interfere with its potency." To this doctrine they are strongly opposed, holding that the sperm-head is the greatest single source of information as to the fitness of these cells for reproduction and that the relative number of abnormal sperm-heads is usually an index of reproductive fitness. The presence of abnormal types indicates a disturbance of spermatogenesis which affects all the sperm cells although it is visible only in those which are grossly deformed.

WELFARE PROBLEMS IN RURAL INDIA.

INDIA possesses some 750,000 villages, in which 90 per cent. of her total population live. While the last 20 years have seen the development of maternity and child welfare schemes in every province, these organisations are chiefly concentrated in large cities, no work on an extensive scale having been attempted in rural areas. In the book before us[2] Dr. A. P. Pillay sets out with commendable lucidity the main features of the problem of rural India, a problem complicated by the poverty of the villagers, their ignorance and illiteracy, caste fictions and factions, complete absence of sanitation, immense distances, and lack of railways or practicable roads. Maternity work is further hindered by the age-long traditions and fatalism of the hereditary dais, or midwives. These women, as Dr. Pillay says, "learn midwifery by precept or often only by instinct, and it is therefore not surprising that they practise the profession in all its historic impurity." Yet they cannot be ousted, and two chapters, by Mrs. D. Mitra and

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[1] THE LANCET, 1931, i., 71.

[2] Zeit. f. d. ges. exp. Med., 1931, lxxvi., 34 and 74.

[1] Amer. Jour. Obst. and Gyn., August, 1931.

[2] Welfare Problems in Rural India. By A. P. Pillay, O.B.E., M.B., B.S., with a foreword by Dr. J. Norman Walker. Bombay: D. B. Taraporevala, Sons and Co. 1931. Pp. 195. 8 rupees.

Miss R. Piggott, describe the efforts made to train classes of native dais in the Punjab and Hyderabad. Encouraging results have been obtained, but both writers emphasise the necessity for proper supervision, without which the standard of work is almost certain to collapse. Dr. Pillay regards an efficient service of doctors, nurses, and midwives as the essential basis for any scientific scheme of welfare work, and a section devoted to proposed improvement in training of medical students and midwives is packed with practical and carefully thought-out suggestions. The volume is a valuable contribution to the solution of the problem of rural India.

QUANTITATIVE ESTIMATION OF VITAMIN D BY RADIOGRAPHY.

THE variation of different rats' response to equal doses of vitamin D is as great as the variation of animal response to any other treatment. But Dr. Bourdillon and his co-workers[1] have now examined this variation and several factors which may influence it, and have worked out a method of estimating vitamin D for which they claim a degree of accuracy which has a "probable error" of about 8 per cent., while the largest error to be expected once in 22 such tests is +26 per cent. or —19 per cent.

A "scale of healing" has been drawn up in which are arranged the radiograms of the heads of the tibiæ of rats which have been rendered rachitic by feeding on a special diet and which then have been given different doses of vitamin D. The scale depicts a very severe degree of rickets at one end, a completely healed bone at the other, and ten successive degrees of healing between them. These stages are numbered 0–12. By reference to this scale the degree of healing shown in the radiogram of the tibia of any other animal may be assessed and given a numerical value. This makes it possible to average the different degrees of healing brought about in different animals by equal doses of the same substance. By the use of this scale, the vitamin D content of different preparations may be compared. Ten pairs of rats should be used in each comparison. Each pair of rats should be drawn from the same litter, and one of each pair should be given a particular dose of the one substance and the other of each pair a particular dose of the other substance. Thus ten animals would all receive the same dose of one substance and ten litter-mates would receive the other dose of the other substance. (The particular dose would be chosen according to the probable vitamin D content of the substance.) The results are assessed by reference to the scale, and each group is averaged. If the averages are equal, the doses chosen may be said to contain equal quantities of vitamin D. If not, then it is possible to make a calculation, from the figures found, to obtain the relative vitamin D content of the two doses. It has been found that about the middle of the range of healing (about 4–10 points) a difference of 2 points on the scale corresponds to a doubling of the dose of vitamin D. Thus, if the average degrees of healing were 5 and 7 respectively, the dose that brought about the average of 7 degrees of healing would contain twice as much vitamin D as the dose that brought 5 degrees of healing.

The report contains all the relevant practical details, and closely examines the possible sources of error. It lays emphasis on the importance of litter-mate comparisons and, for almost all purposes, the estimation of the vitamin D content of a substance in terms of a standard solution of reference. It is the work of an orderly and scholarly mind.

MEDICINE AND THE CHIROPODIST.

CHIROPODY is still, unhappily, associated in the medical and the public mind with hairdressing and manicure, but *it is* rapidly acquiring a higher status. The sixth annual convention of the Incorporated Society of Chiropodists, held at Harrogate from Sept. 24th to 26th, showed that the Society is anxious for closer coöperation with the medical profession. It wants so to win the confidence of the medical man that he will automatically seek the assistance of a qualified chiropodist wherever the condition of the feet is detrimental to the general health. It desires recognition in institutions, and the establishment of a chiropodial clinic in every large general hospital. No doubt such recognition has been delayed by the existence of large numbers of unskilled persons who claim to practise chiropody, and by the modesty of the Society concerning the qualifications of its members. All these must have attended a course at one of the Society's schools, and have passed a severe final examination. The course occupies a year and a half at the London school, or two years in Edinburgh and Manchester; it includes anatomy, physiology, pathology, materia medica, and therapeutics in their relation to the feet, and practical and theoretical chiropody. Many of the teachers have high medical or surgical qualifications, and the instruction and examinations are supervised at every turn by medical men. A *member* of the Society is therefore well qualified to give assistance to the medical profession. It is notorious that the feet of the public are almost as bad as its teeth, and much benefit would follow the enlistment of a skilled chiropodist in every suitable case. To give one example, mentioned by Mr. Norman Lake, the operation for hallux valgus would be far more successful if proper after-treatment by strapping and padding were applied as a routine. Many minor ailments of the foot, he admitted, are better treated by a chiropodist than by a [illegible] The Society is still young, and only possesses slightly over 500 members; nevertheless, it has three schools and several foot hospitals and dispensaries, and chiropodial department has recently been opened in the Royal Victoria and West Hants Hospital Bournemouth. It is to be hoped that this example will speedily be followed by other hospitals. In earnest of its desire for coöperation the Society is steadily raising standards, both technical and ethical, working hard to cultivate a medical outlook. The programme of the Convention included papers by six medical men. As its value becomes more widely known, the number of qualified members available—at present, as Dr. Maxwell Telling remarked, quite inadequate—should increase many times.

Dr. Alexander Hendry, surgeon apothecary to His Majesty's Household at Balmoral, has been promoted to a Knighthood in the Royal Victorian Order.

WE regret to record the death, at the age of 65, of Sir Gregory Foster, Bt., who was Provost of University College from 1907 to 1929, and Vice-Chancellor of the University of London from 1928 to 1930.

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[1] Bourdillon, R. B., Bruce, H. M., Fischmann, C., and Webster, T. A.: Med. Research Council's Spec. Rep. Ser. No. 158. London: H.M. Stationery Office. 1931. 1s.

MODERN TECHNIQUE IN TREATMENT

A Series of Special Articles, contributed by invitation.

CCCXVIII.

THE TREATMENT OF ADVANCED PULMONARY TUBERCULOSIS.

PART I.*

THE treatment of dying consumptives is often said to be depressing because so little can be done for them; and it must be confessed that it is only too easy to lose interest in the treatment of incurable cases. It is, however, the function of medicine to relieve pain as well as to cure, and from my experience of treating nearly a thousand advanced cases of pulmonary tuberculosis (mostly among ex-Service men) I am convinced that life can be made reasonably tolerable for them and that terminal complications can be shorn of much of the pain and misery they bring with them.

The Psychological Aspect.—Nursing.

Before discussing the medicinal side of treatment, a word is necessary on the psychological aspect, for to ignore it will inevitably lead to failure. The "spes phthisica" is too well known to need emphasis; it is happily common, for it offers a valuable help in treatment. With a little care it can be kept alive and gently fanned, so that the patient remains more or less unaware of the hopelessness of his case. I have heard men speaking hopefully of the future within a very short time of death. These patients are not fools, but they are infinitely suggestible. Bound up with this hopefulness is the curious multiplicity of trivial symptoms that arise from day to day. Arising as a result of intense introspection, complaints of these symptoms are doubtless a reflection of an effort to leave no stone unturned that may lead to cure, and they may be partly due also to a desire to escape from the more pressing and constant features of the disease. Such complaints actually help the doctor. By treating all these trifling complaints seriously, he can give the patient greater confidence, the conviction that real interest is felt, and distraction from the hopelessness of his situation. I can recall the pleasure exhibited by many of these patients on some trivial cure of an equally trivial symptom. It is impossible, in fact, to exaggerate the importance of these seemingly futile attentions. The distraction of the patient's mind is indeed a prime necessity. The value of wireless, bedside industry, reading and writing, as stimulants to interest and as means of passing time, is very great. Bedside industry can be arranged at the patient's home as well as in institutions. Leather work, barbola and fancy goods, basket- and chair-making, rush-work, and rug-making form a nucleus to which other occupations can be added. Few of my patients had had any previous experience in this kind of work, yet much of what they did had real merit, and even the least accomplished got much pleasure from any interest shown in their efforts.

Nursing.—That the nursing of these cases can make or mar the treatment goes without saying. By a combination of efficiency, sympathy and understanding; by the strict enforcement of those regulations that are necessary in any tuberculosis ward, combined with a softening of the unavoidable restrictions of institutional life, the machine can be made to run smoothly. I am convinced that what success we have achieved has, in great part, been due to the nursing staff.

Dyspnœa.

One of the most distressing symptoms of these advanced cases is breathlessness. It causes extreme discomfort during the day and often insomnia at night. Whether one is dealing with the fibroid, the bronchitic and asthmatic, or the rapidly caseating types, two drugs stand out pre-eminently—ephedrine and adrenalin. Ephedrine is preferable, as it is more certain in action and more lasting in effect. The drug should be given by hypodermic injection where the dyspnœa is severe or occurs in attacks, as its action is much more rapid by this route. Even in doses of gr. ½ its effect will last from three to seven hours. It brings rapid relief and eases the cough. Hence, in cases of insomnia due to breathlessness and cough, a very useful combination last thing at night is ephedrine gr. ½ with a bromide mixture. I have known many patients to obtain five to six hours of peaceful and continuous sleep in this way. Should ephedrine fail, adrenalin in doses of ♏ x. can be tried, and will sometimes succeed, although its action is of shorter duration. The only drawback to ephedrine, in my experience, is that it may cause undue acceleration of the heart, but its advantages far outweigh this disadvantage. It is least successful in the rapidly caseating types. To patients with bubbling râles over the whole chest, injections of atropine gr. 1/100 give temporary relief.

Cough.

The management of cough is too large a subject to deal with here in detail. Its cause must first be determined and then treated. The dry useless cough, which may occur even in advanced cases, causing dyspnœa and exhaustion, can to some extent be controlled by the patient himself, and a timely warning as to its dangers is often an excellent deterrent. Inhalation of medicated vapours and, if they prove useless, ephedrine gr. ½, with the use of a sedative linctus (gargling the linctus before swallowing is often surprisingly helpful) will usually suffice. The cough with profuse expectoration is a much more difficult problem, indicating as it does extensive disease with breaking down of the tissues. Since the sputum must be brought up, sedative treatment is best avoided, except where the cough interferes with sleep or is so severe as to give the patient no rest. Even then the sedative linctus containing tinct. camph. co. or heroin should be reserved for the night in all but the most severe cases. Much can be done, however, with hot drinks night and morning, when the cough is likely to be most distressing and the sputum most profuse. These drinks, of which none is better than milk, tend to loosen secretion in the bronchial tubes, thereby stimulating rapid expectoration and shortening the attack. They have the added advantage in the morning of counteracting the feeling of exhaustion and at night of inducing sleep. A very useful prescription to help expectoration in the morning is:—

℞ Sod. bicarb. .. grs. xv. | Spirt. chlorof. .. ♏ x.
Sod. chlor. .. grs. v. | Aq. anisi ad .. ℥ ½
To be given with an equal quantity of warm water.

Laryngitis.

Of all the terminal complications of pulmonary tuberculosis, laryngitis is the most to be dreaded. Unremitting local and referred pain, the painful swallowing, incessant coughing of frothy sputum, and insomnia will soon reduce all but the incurably optimistic and cheerful to a state of misery and dejection. Its only compensation is that it brings a moderately rapid death. That these patients waste and die rapidly is, I feel assured, due to the pain they suffer, since they often linger for a considerable time when kept on morphia and heroin.

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* The second part of this article will appear next week.

In the early stages direct attack on the larynx with the cautery, and in the late stages the indirect method of nerve section or injection, offer perhaps the most rational line of treatment. My experience of these methods is very limited, but the preliminary results are hopeful. Silence is, of course, all-important, and is still the most useful treatment for all cases. Simple steam or benzoin inhalations are of great use to some patients, even if the disease is advanced. Inhalations appear to soothe the local condition, relieve the dryness, loosen any sticky secretion, and to some extent ease the pain. They are easy to give, and require no effort from the patient. Some patients, especially in the summer, derive considerable, although temporary, relief from taking ordinary ice-cream, and this is well worth a trial. Local applications or wrappings of the neck with thermogene may be of use, especially when there is much pain referred to the ear. Of local anæsthetics, a mixture of equal parts of orthoform, anæsthesin, and sacch. lact. is the best standby. It makes swallowing tolerable and dulls the pain for a longer time than do cocaine pastilles (menthol and cocaine āā gr. 1/20) or cocaine throat sprays (cocaine hydrochlor. ʒi, glycerine ℥iss, acid carbol. liq. ʒss, aq. ad ℥xv.), which, however, are useful when the throat becomes exceedingly painful. When spraying is ordered it is wise to make certain that the nurse has been spraying the larynx and not the back of the throat, before abandoning the treatment as a failure. In spite of local treatment, the worst cases get little relief, and for them there is no point in withholding morphia and heroin.

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SPECIAL ARTICLES

ESTIMATION OF VITAMIN A IN BUTTER.

BY BARBARA G. E. MORGAN,
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AND

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A BIOLOGICAL method for comparing the vitamin A potency of different samples of cod-liver oil has recently been described by Coward, Key, Dyer, and Morgan (1930, 1931). The method was adopted by Coward, Dyer, Morton, and Gaddum (1931) for a comparison of the biological (vitamin A) value of a large number of oils and concentrates with certain chemical and physical measurements ascribed to vitamin A by various workers. The results described in that paper justified the claim made in the earlier one that by this method an estimation within ±30 per cent. of the true value of the vitamin A potency of an oil could usually be obtained by the use of 10 to 12 animals. The work described in the present paper indicates that the method can be applied to the estimation of the vitamin A potency of butters and margarines also.

Method.

Thation, od of testing may be outlined as follows : Grtive vitabout 30 rats, which had become steady in found th diet deficient in vitamin A, were given ling (about a particular sample of cod-liver oil the scale coach rat of any one group being given vitamin D. ThThe doses of the respective groups ere 5 and 7 resto 20 mg. The mean increase in bout the average up of rats in the five weeks was contain twice as mucd against the dose of cod-liver brought 5 degrees of hey a curve of response was The report contains be a logarithmic curve, as details, and closely examit, when the mean increases vere plotted against the n, the curve formed was a elating response to dose of cod-liver oil was then found to be represented by th equation :—

$$y = 12{\cdot}1 + 40{\cdot}24 \log x$$

where x = the mean increase in weight of the group of in grammes,
and y = the dose of oil in mg.

This was later resolved into two curves, one for bucks of the experiment and one for the does. curves are :—

$$y = 11{\cdot}3 + 50{\cdot}3 \log x \text{ (bucks)}$$
$$\text{and } y = 12{\cdot}4 + 27{\cdot}4 \log x \text{ (does).}$$

Then, in order to find the vitamin A potency of fresh sample of cod-liver oil in relation to that of t oil used in making the curve and now adopted as standard of reference, a fresh group of about 12 ra prepared in the same way were all given the sam daily dose, 1 or 2 mg. of the oil, for five weeks, an the mean increase in weight of the group w calculated. The dose of the standard oil whic would bring about this mean increase was determin either by reading directly from the curve or calculating from the equation of the curve. Th ratio of the dose of standard oil to the dose of fres oil is a measure of the vitamin A potency of the fres oil in relation to that of the standard. Greate accuracy was obtained by calculating the respons of the bucks and does separately, substituting in th respective equations and averaging the results. Th accuracy obtainable by this method is considered fully in the papers to which reference has already been made. It appears to be well within ±30 per cent. of the true value.

In all the work on different samples of cod-liver oil and concentrates, the oil or concentrate was so dissolved in olive oil that the required daily dose was contained in 20 mg. of solution. The dose was given to each rat by letting fall one drop of solution from a dropping tube selected to deliver not less than 19 mg. and not more than 21 mg. in each drop. Thus each rat received the same weight of oil per day. Before accepting this method of comparison for butter and margarine, it was necessary to show that quantitative results could be obtained when differ doses of vitamin A in different amounts of fat w tested; that is, for example, that the responses to some dose of butter and to a dose twice that

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[1] Bourdillon, R. B., Bruce, Webster, T. A.: Med. Resear No. 158. London: H.M. Statio

should be equivalent to the responses to some dose of cod-liver oil and to a dose twice that amount respectively, though in testing oils the different doses of vitamin A are contained in equal amounts of oil and in testing butters, the different amounts of vitamin A are contained in different amounts of fat. A comparison between fresh summer butter and one of the vitamin margarines regularly tested in these laboratories was extended to investigate this point. Doses of 0·05 and 0·1 g. respectively of both butter and the margarine ("Gold Chain") were tested by the method used in testing the cod-liver oils. The mean increases in weight in five weeks of the groups of rats (bucks and does separately) were calculated. The doses of the standard cod-liver oil which would have brought about these mean increases were calculated from the curves and these doses compared.

RESULTS.

The result is easily understood by reference to the following table:—

Table showing the Measurement of the Vitamin A Content of Different Doses of (a) *Butter, and* (b) *a Vitamin Margarine by referring to a Standard Sample of Cod-liver Oil.*

Dose (g.).	No. of ♂'s.	Mean increase in weight in five weeks (g.).	Dose of standard oil which would have brought about this increase (mg.).	No. of ♀'s.	Mean increase in weight in five weeks (g.).	Dose of standard oil which would have brought about this increase (mg.).	Average for bucks and does (mg.).
Dairy Butter bought July 3rd, 1930.							
0·05	8	19·1	1·4	12	15·5	1·3	1·4
0·1	5	29·6	2·3	4	30·75	4·7	3·5
Vitamin Margarine ("Gold Chain") bought July 1st, 1930.							
0·05	3	12·7	1·1	5	20·4	2·0	1·5
0·1	5	44·6	4·6	5	21·6	2·1	3·4

The doses of cod-liver oil which would have brought about the same mean increases in weight as 0·05 g. and ·1 g. butter were 1·4 and 3·5 g. respectively.

The doses of cod-liver oil which would have brought about the same mean increases in weight as 0·05 g. and 0·1 g. margarine were 1·5 and 3·4 mg. respectively. The ratio of the doses of butter or of margarine was : 2. The ratio of the doses of cod-liver oil corresponding to the doses of butter was 1 : 2·56. The ratio of the doses of cod-liver oil corresponding to the doses of margarine was 1 : 2·23. Thus the error of this determination on the butter may be said to be +28 per cent., and the error of the determination on the margarine may be said to be -12·5 per cent. These figures are well within the margin of experimental error of a biological determination.

Thus it would appear that within the limits of this experiment the method yields quantitative results even when the amounts of fat ingested with the vitamin are different. It emphasises the need for dosing about 10 to 12 rats in a group for any given dose of test material, for it is evident from a comparison of the results obtained from bucks and does separately on any given dose that small numbers of animals may give a result ±33 per cent. of the average, so that a single result on five animals might well have an error greater than this.

A further interesting comparison may be drawn between the butter and margarine. Both samples were bought in the open market. The manufacturers of the "Gold Chain" margarine claim for this, as for their other "vitamin margarines," a vitamin A potency equal to that of butter. It is obvious from the figures in the Table that their claim is justified. A dose of 0·05 g. butter proved to be equivalent to a dose of 0·05 g. margarine (measured as being equal to 1·4 and 1·5 mg. respectively of the standard sample of cod-liver oil), and a dose of 0·1 g. butter proved to be equivalent to a dose of 0·1 g. margarine (measured as 3·5 and 3·4 mg. respectively of the standard sample of cod-liver oil). Incidentally it is of interest also to note that the vitamin A potency of the sample of butter, and also of the sample of margarine, has about one-thirtieth (1·4/50, 3·5/100, 1·5/50, 3·4/100) the potency of the sample of cod-liver oil which was adopted in this laboratory as being an average medicinal cod-liver oil.

SUMMARY.

The method described by Coward, Key, Dyer, and Morgan (1930 and 1931), and Coward, Dyer, Morton, and Gaddum (1931) for the estimation of vitamin A in cod-liver oils has been shown to give consistent results also in the estimation of vitamin A in butters and margarines. This is of value, for the testing of different amounts of butter involves the giving of different amounts of fat, in addition to the fat-free diet employed in this method, whereas the testing of different doses of cod-liver oils has always been carried out by diluting, so that the required dose is contained in the same amount (19–21 mg.) of olive oil.

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Same authors: Ibid., 1931, xxv., 551.

MEDICINE AND THE LAW.

The War Office and Medical Records.

IN a recent case at the Central Criminal Court, mentioned in our columns last week, the learned Recorder criticised the War Office for not disclosing medical records. When the case was finally disposed of, a representative of the War Office attended the Court to give an explanation. The governing principle, he explained, was that official documents were privileged, the view being taken that soldiers should be encouraged to go to the medical officer without reports being used to their detriment. Each case was carefully considered and, if the Secretary of State for War felt that the interests of justice were paramount, the records were disclosed. In this particular case, when application was made, the War Office had thought that there was not sufficient information available to justify any departure from principle. After attention had been directed to the matter afresh by the Recorder's observations, the point was reconsidered and the information was now made available. It showed that the accused ex-officer had been wounded in the thigh in 1914 and severely wounded in the right arm in 1916.

From the statement of facts put forward by the prosecution the Recorder might well have supposed that the records would disclose evidence of shock or of a head wound; but there was no history of this. The incident was satisfactorily closed by the Recorder remarking that he quite understood the general policy of keeping medical documents confidential and that he was obliged to the Secretary of State for his courtesy in the matter.

THE NATURE OF VIRUSES.

It is this infinite invisible
Which we must learn to know and scorn.
—T. L. BEDDOES (1803–49), *poet and physiologist.*

ADDRESSING Middlesex Hospital students on Oct. 1st on "The Infinite Invisible in Medicine," Prof. James McIntosh spoke of the difficulty of conceiving that anything as small as ultramicroscopic bacteria or viruses could be alive. They are, he remarked, almost as infinitely small as the solar system is infinitely large. Their size approximates that of chemical molecules; the smallest known virus being about 20 micromillimetres in diameter, which is actually smaller than the molecule of (say) hæmoglobin with its 30 micromillimetres. The size of a molecule of ordinary protein is however much less than this and, small as they are, the smallest of these invisible microbes would still contain a score or more of protein molecules, a number which does not necessarily preclude a virus from being a living agent.

POSITION IN THE BIOLOGICAL SCALE.

The general consensus of opinion, he went on to say, is that they are alive and, if not actual bacteria, are closely related to them. The difficulty is that when the ordinary tests of bacterial life are applied to them, in most instances an unsatisfactory response is obtained. To begin with, these viruses cannot be directly seen by the ordinary microscope, although in fluid media their presence, if not their form, can be made apparent by the ultramicroscope. Even with this powerful apparatus the smallest viruses appear only as bright points of light, just as the remotest stars appear under the most powerful telescope. Again, cultivation on the artificial media used to grow ordinary bacteria has been so far a failure. Some of these viruses, that of small-pox in particular, can however be grown under the conditions which will allow of the multiplication of tissue cells known as tissue culture. Under such conditions and with living cells present, multiplication of the virus can be obtained in an indefinite series. It has been suggested that the presence of living cells in the cultures is necessary because these viruses actually live and multiply inside the living cells. In no instance as yet has it been possible to show that these viruses have a definite metabolism—e.g., respiration, &c.—comparable to ordinary bacteria. So far, the only real test of the presence of these invisible viruses is their power of multiplying in the animal tissues and producing disease.

The fact that these viruses can live only in close relationship with living cells of the animal body suggests that they are much more parasitic than ordinary bacteria; many appear to live actually inside cells. It is of course the exception for ordinary bacteria to do this; they live mainly on the juices of the tissues in the intercellular spaces. The few that are found inside tissue cells include some of the larger bacilli, such as leprosy, so that the intracellular life has nothing to do with the minute size of viruses.

THE BACTERIOPHAGE.

This close association with living cells is particularly well shown in the case of the bacteriophage, a supposed virus which lives on and attacks living bacteria, and about whose exact nature there has been, in recent years, a great deal of discussion. The bacteriophage will multiply only in living cultures of bacteria which it ultimately attacks, kills, and completely dissolves. In fact, if a little of this active agent be added to a thick and opaque culture of a suitable bacterium, it will dissolve the bacteria in a short time, leaving a clear fluid. It can also attack and completely dissolve thick opaque colonies of bacteria. The bacteriophage is exceedingly active, as often one-millionth of a cubic centimetre or less is sufficient to bring about the changes mentioned. This effect can be carried on indefinitely from one culture to another and this, said Prof. McIntosh, is adequate proof that the bacteriophage is a living agent. It thus causes a disease of bacteria, so that we may here quote with truth the old adage about great fleas having little fleas upon their backs to bite them.

INCLUSION BODIES.

Apparently many of the characteristic features of the diseases caused by these viruses, such as small-pox, measles, herpes, infantile paralysis, Rous chicken sarcoma, are the result of the close relationship between the virus and the cells. Further, the tissue cells which are attacked frequently show highly characteristic changes in their protoplasm, with the development of structures known as inclusion bodies. These peculiar bodies can be demonstrated by staining and are, in certain instances, colonies or aggregates of the virus. Thus we have Guarnieri bodies in small-pox, Negri bodies in rabies, polyhedral bodies in diseases of plants and insects, nuclear inclusions in herpes, chicken-pox and Borna disease of horses. But the study of these is really [illegible] in its infancy and we cannot say much about them present.

There are, he went on, scientists who declare th these viruses are not alive, and that they are in [illegible] and of the nature of a ferment or enzyme, but a ferment cannot increase or multiply, and their on similarity is that they can both act in small or minut quantities. Others attempt to explain the regenera tive or growth effects of these viruses by supposin that they are ferments which are regenerated in s[illegible] way from the destroyed body cells or bacteria. The suggest that these viruses are produced from t protoplasm of the destroyed cell in much the same wa as Charles Creighton suggested that visible bact[illegible] were the result of the disease and not the ca[illegible] But the facts elicited in support of this view are [illegible] convincing.

In support of the contention that they are livi agents, experimental work shows that the acti or effect of physical agents, antiseptics, heat, d[illegible] and radiation on these viruses approaches nearer t the effect on ordinary bacteria than to that on f[illegible] ments. Again the invasion of the tissues during attack of a disease such as small-pox leads to [illegible] appearance in the patient's blood of antibodi which are capable of destroying or neutralising the virus. No such bodies follow the injection of ferments.

CONCLUSION.

In the case of these viruses we have, said Prof. McIntosh, minute apparently living bodies capable of multiplying within the tissues where they call forth specific antibodies, yet so small that they contain only a few molecules of protein substance. Have we then in these viruses reached the limit of size in biology as the physicist with his atoms, electrons and protons has done in the inanimate world? It would seem that we have almost done so, as it is inconceivable that a living particle could be less than a simple protein molecule. Perhaps, as Prof. A. E. Boycott has said, these viruses may be a transition between the living and the dead.

BRITISH ASSOCIATION.

CENTENARY MEETING IN LONDON.

On Sept. 24th, in opening a discussion in Section I. on the

Physiological Basis of Sensation,

Prof. E. D. Adrian took up the view that the working of the sensory apparatus seems to depend on physical and chemical changes of fairly simple character. The events in the brain which cause sensation are still uncertain, but much is known of the kind of messages transcribed by a sensory nerve. They consist of a succession of impulses in the nerve-fibres, each impulse being a wave of activity of very brief duration, beginning as a breach in the surface, spreading quickly along the nerve, followed by recovery and by oxidation to make good the loss of energy. Study by amplification of the accompanying electrical disturbance shows that the frequency of the impulses varies from 20–100 per second, depending on the intensity and abruptness of the stimulus, but in any one fibre the impulses are all alike, and they are of the same general type in all nerve-fibres. The behaviour of sense-organs, notwithstanding their diversity in structure, is similar to that of nerves. There is no variation in intensity or form of their impulses, only in frequency.

Nerve-cells proper can, he said, do many things which their fibres cannot; they can remain in a state of activity for some time; they are suppressed or influenced to excitation by impulses reaching them from their fibres. Their active state probably consists of fairly simple physical and chemical changes. In the brain the individual cells are similar to those in the peripheral system. Then, the question arises, is a small group of cells responsible for a particular sensation, or is it the result of an elaborate pattern of excitation of the whole, lit up from the small group? There is much to say in support of the latter theory. Consciousness must be intact for anything to be felt, and the whole brain must be in working order for the maintenance of consciousness. Integrative action must be called in to relate the sensation to past experience. For example, in reading we glance at a few hints and the rest is supplied from past experience, from our childhood. The eye and the ear are the most used of our senses and hence are most related to experience. For this reason it is likely that they have an elaborate pattern in the brain. In the simpler and less meaning sensations such as touch and pain, there is less need for integration. Normally, messages from pain-endings are being damped down by impulses from other sense-organs, but if these stop the pain is felt.

Prof. Frank Allen reported numerous experiments on sight, touch, hearing, and other senses, in order to demonstrate a mathematical relationship between the critical threshold of stimulation and the intensity of stimulation. Thus, the plotting of the critical speed of flicker against the logarithm of the intensity of light gives a straight line.

THE BASIS OF AWARENESS.

Dr. C. S. Myers maintained that the knowledge derived from the study of the nerve-fibres and end-organs, of the message sent to the brain is only an insignificant addition to the understanding of the kind of process that goes on in the brain, the basis of awareness, the consciousness of sensation. At present we are almost wholly ignorant of what occurs in the more important sensory centres of the Although these higher sensory centres are essential for sensation they are not to be regarded as the seats of sensation. For instance, if certain nervous impulses must be transmitted through the occipital visual centre it does not follow that the centre is the seat of visual sensation. Sensation depends on the relation of the activity of the sensory centres to the vast integration of the central nervous process on which self-activity in turn depends. Where no self-activity is involved there can be no consciousness of sensation. The infant does not first receive a multitude of discrete sensations and combine them together into the perception of an object. Sensory consciousness is not the function of the primitive mind. The infant initially receives only vague impressions of situations, and only by experience does he come to differentiate and to appreciate the simpler sensations. The biological function served by the consciousness of sensation is the control of its specific efferent responses by the organism. Sensations have become differentiated from one another because the response is different for each. When the patterns of response for two different stimuli are too nearly identical, the respective sensations are indistinguishable; just distinguishable (or just indistinguishable) differences in sensation do not necessarily imply the activity of the same (or different) end-organs.

SENSORY DISCRIMINATION AND THE EYE.

Sir J. Herbert Parsons said that in the study of the changes of potential in afferent nerves, the conditions are rendered as simple as possible and the variables are reduced to a minimum. To use these results for the interpretation of the experiences of the intact animal, they must be correlated with facts derived from other sources. The term sensation implies a conscious or psychological response, which is only fully known to the individual who experiences it, but speech enables human beings to make comparisons. The consciousness of lower animals can only be inferred from their behaviour. Hence the uncertainty of deductions made from them, but these can be corroborated by anatomical studies on the assumption that function is dependent on structure. Head's dual system, an analysis of sensation into the cruder, more primitive, or protopathic, and the higher, discriminative, or epicritic types, has thus been confirmed, not only for tactile sensations, but also for the special senses. Even those neurologists who refuse to admit Head's views must accept the broad structural and functional facts which prove the optic thalamus and its connexions to be a great lower level sensory system subserving the grosser and less discriminative sensory phenomenon, distinct from the apparatus of the higher sensory discrimination, wherever they may choose to put the latter. Phylogenetic study may also reveal variations in sensory capacity at present unrecognised in species where adaptation to special environments has occurred. It is attractive, for example, to think with Hess that all fish are colour-blind, and that the colour vision of birds is very inferior to ours. It is quite likely that both statements are true, but it is certain that the phylogenetic status of an animal is a poor indication of its various sensory attainments. The retinæ of birds and reptiles, for example, contain coloured oil globules, affording strong evidence that their vision has evolved along lines different from ours. In man, hearing is the sublimation of the appreciation of mechanical stimuli and the allied functions which, in fish, are represented by the lateral line organs are lost. Sm in us is reduced to a minimum and has been by the pre-eminence of vision. Vision is the sense which provides the most delicate form of sensory discrimination which man, and presumably any animal, has yet attained.

Although there is strong evidence of representation of complex phenomenon of perception in the peripheral mechanism and lower neural centres in the eye, much remains unexplained. For instance, it is not known why a presentation which arouses a given pattern by direct visual fixation arouses the same pattern when it falls upon the peripheral retina, even in spite of differences of size, intensity, and colour. A circle remains a circle when viewed obliquely though the retinal image is now an ellipse. In the present state of knowledge the explanation must be sought from psychological factors, the physiological bases of which are unknown. One such is attention upon which the configuration and significance of a perceptual pattern must depend. Attention sensitises the formative zone with the result that the impulses are correlated into a pattern which arouses a definite perceptual pattern—a percept of the higher order. On subsequent occasions the impact of the excitation arouses a more and more highly developed pattern as a primary response and in instinctive reactions this occurs upon the first occasion owing to the innate configuration of the formative zone.

Prof. H. E. **Roaf** reported an experiment which showed that there is an overlap in "the common end-point" of the two eyes in the brain.

TEN DISTINCT SKIN SENSE-ORGANS.

Dr. R. S. **Creed** suggested two points to be elucidated: first, the mechanism of the ten distinct skin sense-organs. Of these we have merely a slight knowledge of the pacinian corpuscles—namely, that deformation is an adequate stimulus to it. We are still in doubt as to the sensation evoked; it is even possible that it is concerned with reflexes and not with sensation at all, since these bodies are also found in abdominal viscera. The precise organs for response to heat and cold are unknown and exhaustive search often reveals no nerve-endings. What are the end-organs of the sense of position? Secondly, little is known of the changes that an impulse may undergo at the many relays in the efferent system. Some integration occurs below the level of the sensorium.

Prof. H. **Hartridge** criticised the classroom analogy of the sensory system to that of the telephone, since it takes no account of memory.

Sir **Edward Sharpey Schafer** pointed out that it is hard to accept Head's dual system for three reasons: First, his own experience from section of two cutaneous nerves in his arm does not uphold Head's work. Secondly, Trotter, from his study of numerous cases has obtained diametrically opposite results. Thirdly, pain is a sensation of higher rather than lower animals, so that the idea that protopathic sensation is more primitive is undermined by fact.

Prof. D. W. **Bronk** laid stress on the importance of correlating the intensity of the stimulus to the sensation. Prof. Adrian's work has shown that the frequency of impulses falls off after repetition of the stimulus. In a comparable way, on the motor side, the discharge of stimuli become more frequent with the greater call to activity; this has been observed in the phrenic nerve during asphyxia.

Dr. E. P. **Poulton** showed tracings taken from a manometer connected to an inflated bag placed in the alimentary canal of patients and healthy individuals. Pain occurred when the gut wall was stretched and it was relieved when the lumen was reduced either by the muscular contraction of organ or by deflation of the bag. If the bag did not yield to the muscular contraction the pain persisted. His tracings also showed that stimulation of an area of refined pain altered the rhythm and extent of the contraction of the viscus.

Prof. H. H. **Woollard** said that the nerves of the protopathic areas showed a characteristic anatomy: a thick fibre with multiform uniform endings accompanied by a very fine fibre with a diffuse ending. These nerves are found in the glans, the mammary gland, parietal peritoneum, and in muscles.

Sir **Charles Sherrington** said that the time relations are of great use in the study of the occurrences between initial stimulus and conscious sensation.

Prof. **Adrian** summed up by saying that we are very ignorant of the confines between physiology and psychology. It is just assumed that sensations develop during childhood and that, as we grow up, they are differentiated from the complex mass received.

UNITED STATES OF AMERICA.

(FROM AN OCCASIONAL CORRESPONDENT.)

THE TYPHUS-LIKE DISEASES.

A PROMISING field of investigation has been found in the typhus-like diseases of this continent. These include Brill's disease, or the endemic typhus of the Eastern and Southern States; Rocky Mountain fever, which now appears to be endemic in the East as well as in the Mountain States, and tabardillo, or Mexican typhus, which may or may not date from the Spanish conquest. Between European typhus and the endemic typhus of Eastern States there has been established complete cross immunity. Epidemiological evidence suggests the rat-flea as the source of Brill's disease and the rat as a reservoir of infection. The rat mite (*Liponyssus bacoti*) must also be considered a possible vector. However, the recent discovery of typhus virus present in nature in the flea [1] is of significance when coupled with epidemiological evidence.

Cross immunity is not found between Rocky Mountain spotted fever and endemic typhus (Brill's disease), but it is well marked between the strains of spotted fever virus obtained from the Rocky Mountains and from Eastern States.[2] In each case the vector seems to be a tick. The dog tick (*Dermacentor variabilis*) is incriminated in the East, and in the West the wood tick (*D. andersoni*), which, besides spotted fever, also carries the virus of tick paralysis, Colorado tick fever, and tularæmia. The rabbit tick (*Hæmaphysalis leporis-palustris*) conveys spotted fever from rabbit to rabbit, but does not infest man. Its rôle in maintaining a reservoir of infection will be a part of the investigation to be undertaken in the laboratory in Hamilton, which this year has been acquired by Congress from the State of Montana for the U.S. public health service. A total appropriation of $150,000 was made, and half of this will be available for enlargements and improvement of the facilities. The demand for tick vaccine has been increasing; some 20,000 people have been vaccinated in the Mountain States during the last four years. For this and for research purposes about 200,000 infected ticks are reared each year.

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[1] Dyer, R. E., Rumreich, A. S., and Badger, L. F.: U.S. Pub. Health Rep., 1931, xlvi., 334; also Kemp, H. A.: Jour. Amer. Med. Assoc., Sept. 12th, p. 775.

[2] Dyer, R. E., Rumreich, A. S., and Badger, L. F.: Jour. Amer. Med. Assoc., August 29th, p. 589.

Much work remains to be done on all these diseases, and especially on tabardillo. The infectious agent has recently been found [3] in the brains of rats (*Mus rattus*) in Mexico City. Whether fleas, mites, ticks, or bed-bugs convey the disease from rats to men has not yet been determined. Zinsser favours the bed-bug. He points out that in Vera Cruz, where the climate is tropical and ideal for flea life, typhus is quite rare, whereas in Mexico City, 7300 feet higher, fleas have less congenial environment than the more hardy bed-bug. In Mexico City there are epidemics of typhus every year. Moreover, he says, the bed-bug will "bite anybody and anything under any circumstances." With Dr. Castaneda, he has kept the virus of typhus alive by rectal injection and by feeding of bed-bugs on typhus rats. It should be possible by animal experimentation to discover whether the bed-bug can reconvey infection to the animal it bites. In the last analysis it will be epidemiological research which determines which vector is of the greatest practical importance. One waits also for cross immunity experiments with the virus of tabardillo against the virus of the other two typhus-like diseases.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENT.)

Health of British Troops.

THE Public Health Commissioner tells us [4] that in a year in which the average strength of British other ranks was 55,628, and that of officers 2395, the rates per 1000 of admissions to hospital were 609·5 and 415·9, while deaths amounted to 2·84 and 7·10 respectively. This striking difference in the mortality figures between officers and men is accounted for by the fact that of the total of 17 deaths of officers, 8 were due to injury, but it is nevertheless true that over a period of ten years the average mortality of officers has exceeded that of other ranks, the figures being 5·49 and 3·29 respectively. No particular reason is assigned for this excess. Thirty or forty years ago it might have been attributed in great part to the difference in housing. At that time, while the men were generally housed in fine stone barracks, with good sanitary arrangements and careful supervision of the kitchens, it was no uncommon thing to find their officers living in thatched bungalows, the floors of which were made of mud, liberally smeared with cow-dung, while the kitchens and sanitary arrangements were often filthy, fly-ridden, and uncared for. No doubt there is still a balance well on the credit side for the men, but the conditions for officers are now very much improved, and it is to be hoped there is some other explanation for the discrepancy, such as that of this year, which evidently exists.

CHIEF CAUSES OF INVALIDITY.

For other ranks the year was a normally healthy one. The principal causes of admission to hospital were malaria, local injuries, minor septic diseases, venereal diseases, sandfly fever, tonsillitis, dysentery, and bronchitis, in order of frequency. Of these, malaria, sandfly fever, diarrhœa, dysentery, and tonsillitis all showed a definite increase. There was a decrease in venereal diseases, which were 206 less than in the previous year, at 2552. The total of 158 deaths, or 2·84 per 1000 of the strength, compares with 2·95 per 1000 in 1928, and 3·34 in 1913. The most important causes of deaths were local injuries, the enteric group of fevers, and pneumonia. Appendicitis accounted for 9, drowning for 8, and suicide for 6. It would be interesting to have a comparative statement for the last item over a period of years. No doubt present conditions in India are productive of considerable strain for the Army. The average number constantly sick in hospital was 30·44 per 1000 of the strength, as compared with 29·04 in 1928, 29·18 in 1927, and 29·68 in 1913. Out-patients averaged 19·88 per 1000. The figures for invaliding are much the same as those of the previous year—9·78 per 1000 of the strength, as compared with 9·87 for 1928, and 7·49 in 1913. Of the total 544, 57 were invalided for tuberculosis, 52 for diseases of the middle ear, 52 for mental diseases, 36 for disordered action of the heart, and 28 for epilepsy.

THE REVIVAL OF "P.U.O."

The enteric group of fevers shows a considerable increase at 233, as compared with 197 in the previous year, though deaths are not a large item in the mortality list (19 as contrasted with 18). As the incidence and nature of these fevers amongst British troops is closely related to that amongst Indian troops, they have been tabulated and analysed together. The increase in the former has been largely due to typhoid, while in the latter it has been due to both typhoid and paratyphoid A and C infections. Under the present regulations a case may only be diagnosed as typhoid or paratyphoid if the infecting bacillus has been isolated. Cases in which there has only been demonstrated a definite rise in the curve of agglutination by the Widal test, or which have been merely clinically diagnosed enteric, are classified as "enteric group." It is recognised in a D.M.S. circular of the year that there is still a considerable use for the heading "P.U.O.," in spite of increased facilities for diagnosis, and this heading, which has sometimes been looked on as a refuge for slackness, seems to have returned to favour. The circular justly remarks, after laying stress on the necessity for accurate diagnosis where possible, that there is still, in all probability, a large group of fevers which are not recognisable by existing methods, and that these can properly be entered as P.U.O. It is clear that increased interest is all the time being displayed in laboratory investigations, and this section of the report well repays attention

MALARIA, SMALL-POX, DYSENTERY.

As regards malaria, the admission-rate has fallen steadily for the past five years. During the year under review it rose somewhat, but the rise was almost entirely due to an outbreak of malignant tertian in the North-West Frontier Province and Northern Punjab. Plasmoquine was under trial in some of the larger hospitals, and is reported on favourably. Malaria surveys were carried out during 1929 in a number of the most malarious stations, in amplification of similar work done in former years, and operations based on these surveys have been started. Anti-mosquito measures, which in normal years have proved very effective, apparently failed this year in checking the onset of epidemic malaria in Northern India. Small-pox has been conspicuous by its absence; only four cases occurred during the year. This should serve as a useful object lesson to those who are clamouring for relaxation of vaccination throughout India. Dysentery, which accounted for 1039 admissions, is still attracting much attention. Material from the stools of 4235 cases reported as suffering from this disease was examined in the military laboratories, and typical bacillary exudate was found in 2286. In 1329 of these dysenteric bacilli of one or other kind were found. As contrasted with this, vegetative *E. histolytica* was observed in 296 cases. The results from all workers in the military laboratories, over a long period, show that the relative proportion of bacillary and amœbic dysentery is roughly from 80–90 per cent. bacillary to 10–20 per cent. amœbic. All the same, it is suggested that the tendency in favour of a diagnosis of bacillary as opposed to amœbic infection may have gone too far, and that amœbic cases are probably being missed. The vexed question of carriers of amœbic dysentery is discussed at some length. It appears that too much stress may have been laid on the danger of infection from cooks and other menials employed with troops, and that the existing regulations, under which any found to be suffering from amœbiasis must be discharged, are perhaps unnecessarily harsh.

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[3] Mooser, H., Castaneda, M. R., and Zinsser, H.: Ibid., July 25th, p. 231.

[4] Annual Report of the Public Health Commissioner with the Government of India for 1929, Vol. II.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

PAYMENT OF INSURANCE PRACTITIONERS.

AN agreement has been made between the Association of Krankenkassen (sick-clubs) and the Hartmann-Bund by which the fees paid by the clubs are to be reduced by 10–20 per cent., according to the amount paid in the different districts. The agreement is only provisional, and is to be replaced by a definitive one. The clubs are compelled to reduce the fees by their bad financial condition, which is due to unemployment of the workers and insolvency among the employers. The above agreement was made to avoid measures by the Government under the Emergency Act, by which the fees might perhaps have been reduced still more.

The Association has recently published a statistical record for the year 1930 of the income of medical men engaged in club practice. Some 29,000 are included in the figures, and it appears that 42 per cent. of them earned less than M.2000, 28 per cent. from M.2000 to M.6000, 20 per cent. from M.6000 to M.12,000, and 9 per cent. from M.12,000 to M.25,000; while 190 doctors received from M.25,000 to M.35,000, 50 from M.35,000 to M.55,000, 9 from M.55,000 to M.75,000, and 4 from M.75,000 to M.100,000. The four last categories, earning more than M.25,000, include only 0·8 per cent. of the total. The great majority of insurance practitioners are far from earning a good income from club practice, for nearly half of them receive less than M.2000.

OPENINGS FOR GERMAN PRACTITIONERS ABROAD.

Dr. Schopohl, director of the Prussian Medical Department, has edited a compilation of the laws and regulations concerning medical and dental practice in Europe, Asia, Africa, America, and Australia. The book is written for the use of German medical men intending to settle abroad, and Dr. Schopohl was assisted in his work by the German Foreign Office, which instructed the German diplomatic representatives to answer his questionaire. The difficulty of his task, however, is shown by the fact, for instance, that each of the 49 United States of America has regulations of its own which have to be described at full length in the book. The work deals with the study and the examinations abroad; with the question whether German examinations are recognised without or with an additional examination; and whether a German medical man must go through the whole curriculum and pass all the examinations. German diplomas are not recognised anywhere without at least an additional examination; nearly everywhere a qualification is granted only if all the examinations have been passed, and sometimes practice is even then allowed only on naturalisation. For some countries there are treaties of reciprocity—e.g., between England and Italy—but there is no treaty between Germany and any other State, except for practice in the frontier districts. Dr. Schopohl advises medical men intending to settle in East Asia to apply first for an appointment as a ship's medical officer on a German liner so as to become acquainted with the country and to inquire on the spot into the chance of a settlement; nearly all the medical men residing in the ports of East Asia have previously been ship's doctors. Generally speaking there is very little chance for a German medical man to settle abroad; the profession being everywhere overcrowded, the settlement of foreigners has everywhere been made very difficult, and in some places impossible.

PETROL AND THROMBOSIS.

Thrombosis and embolism have much increased of late in nearly every civilised country, but the cause of this surprising increase is not yet apparent. Food, intravenous therapy, and influenza have all been blamed, and now Prof. Erwin Payr, of Leipzig, suggests that petrol and benzol used by motor-cars may be partly responsible, an idea which occurred to him because the incidence of thrombosis is relatively greater in large cities than elsewhere. Dr. Kuntzen, of Leipzig, has now made experiments on animals to study the influence of exhaust gas on the blood. He shut rabbits and rats in cages to which a mixture of benzine and petrol vapours was introduced for 20–30 minutes daily, and he found that the thrombocytes in the blood of those animals much increased. He then injected three to four drops of varicophytin, a compound used for the treatment of varices by obliteration, and observed that the blood of animals which had inhaled the gas coagulated much quicker than that of other animals.

INJURIES OF THE RECTUM BY THERMOMETERS.

Dr. Siebner, of Stuttgart, reports six cases in which the wall of the rectum has been damaged by insertion of thermometers. The accidents are usually caused by the patients themselves, who take their temperatures because they are worried about illness. Soon after introduction of the thermometer there is tenesmus with hæmorrhage. The injury is always on the anterior wall, some 5 cm. above the anus.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

A NURSES' PENSION FUND.

ABOUT a year ago the Irish Nurses' Union inaugurated a pension fund for nurses, on a purely contributory basis. The subscription asked for was the small sum of 5*s*. a year, but, in spite of this small demand, only 431 nurses and midwives joined the scheme. Attempts are being made to establish the fund on a wider basis, and a public meeting was held last week in the Mansion House, Dublin, for this purpose. The Lord Mayor presided, and speeches were made by well-known medical men and other

(*Continued at foot of opposite page.*)

PUBLIC HEALTH SERVICES

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are 1930 statistics of two county boroughs and a city :—

Name of district and estimated mid-year population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Respiratory diseases with influenza.	Heart disease.	Infant and neonatal mortality.	Young child (1–5 yr.) mortality.	Maternal mortality in childbirth.
Croydon .. (222,300)*	15·8	10·5	0·79	1·52	1·6	1·7	48/23	14	2·0
Brighton .. (146,800)*	13·5	13·0	0·91	1·70	1·2	2·6	51/20	28	3·5
Norwich .. (124,900)*	15·7	10·9	0·72	1·74	1·3	1·9	45/22	23	4·9

* These are the 1929 estimates and may be compared with the 1931 Census figures—viz., 233,115, 147,427, 126,207.

Registered stillbirths per 100 live births: Croydon, 3·0; Brighton, 3·8; Norwich, 4·2.

Croydon.

Dr. Oscar M. Holden says that under the Local Government Act the health committee has become responsible for all maternity and tuberculosis work, and the mental deficiency committee for mental defectives—Croydon's hospitals are overtaxed. The Mayday Road (poor-law) Hospital could not be appropriated at once by the health committee. It contains 465 beds, 64 of which are allotted to tuberculosis, 20 to maternity, and 64 to mental cases, and over 100 beds are occupied by Surrey county patients, so that many adjustments have to be made, and also the buildings need modernising before it can function satisfactorily as a general hospital. The floor space in the wards is inadequate, and in remedying this, 72 beds will be lost. It is proposed to increase the beds to 800 ultimately. The Croydon General Hospital has 130 beds, and plans are in hand for the addition of 61. Dr. Holden says the number of contacts examined at the dispensary is increasing, but is still far too small. The erection of glass partitions between every two beds at Cheam sanatorium has been appreciated as giving greater privacy. An X ray plant is to be installed which will enable artificial pneumothorax to be carried out. The occupation centre has been transferred to a new building, enabling a greater variety of work to be done under excellent conditions. This work increases steadily in volume, and the patients after they go home keep it up, and either find a market for their finished articles or sell them through the agency of the sanatorium.

The chief event in the maternity and child welfare work was the extension of St. Mary's Hospital, conducted by the Croydon Mothers' and Infants' Welfare Association. This hospital now provides 32 maternity beds, 30 of which are reserved for council cases. The voluntary societies have not suffered financially from the introduction of block grants, and their work is now more closely linked up with the official public health work, to the mutual benefit of both parties. A useful step towards coördination has been made by the appointment of a whole-time obstetrician, who lives at Mayday Road Hospital and is responsible for the maternity and gynæcological work at that institution. He is also in clinical charge of the antenatal and postnatal centres, and attends daily at St. Mary's Hospital, where the confinements are conducted by the midwives on the staff, and a rota of six general medical practitioners. In November a convalescent home for infants and children up to the age of 14 was established. The observation nursery has proved a useful unit, and may ultimately be transferred to Mayday Road Hospital, thus vacating accommodation much needed for the maternity and school clinics. The need of suitable accommodation for the mentally deficient is not likely to be eased for the next two or three years until the county council have altered poor-law institutions for the purpose of making joint provision for the county and borough. The orthopædic work continues to expand, and gross deformities are far less frequently encountered than formerly. A remedial exercises clinic, conducted by a whole-time remedial gymnast on the council's staff, works in collaboration with the orthopædic surgeon.

Dr. Holden mentions that the consumer naturally concludes that grade A is the highest standard of milk, whereas it is the least safe of the designated milks. A well-equipped dairy for the pasteurisation and distribution of milk was established during the year, and Dr. Holden suggests that the wider use of pasteurised milk has played an undoubted part in the decline of non-pulmonary tuberculosis. This decline is more noticeable than that of the pulmonary disease.

Brighton.

Dr. Duncan Forbes gives a plan of the poor-law institution, which is of the mixed type (providing for chronic senile cases, mental cases, and able-bodied men), and administered by the public assistance committee. The sick wards, which constitute a fully equipped general hospital, include 710 beds (of which 541 were occupied at the end of the year), and serve to relieve the Royal Sussex County Hospital, which always has a long waiting list. Treatment by artificial pneumothorax continues to grow, and refills are provided for patients whose treatment began elsewhere. The refills given to out-patients at the dispensary numbered 64, and at the sanatorium 109. Up to the end of 1930, sections of the livers of 237 stillbirths have been examined, of which 13, or 5·5 per cent., showed spirochætes. On the subject of measles contacts Dr. Forbes concludes that the main object should be to protect children under 5, and if possible to delay epidemics until the summer. When measles is about, children under 5 should be excluded from school and creches, and Sunday schools should be closed, as also cinemas to children. School closure should not be practised in the warm months, but may be desirable in the winter in order to delay the epidemic. No cause was discovered for an outbreak of paratyphoid B, affecting 11 rescue girls at St. Mary's Home, Rottingdean. In nine cases the

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(*Continued from previous page.*)

citizens. Some speakers suggested the possibility of obtaining funds from public sweepstakes, while others stressed the danger to the economic independence of nurses should they become dependent on sources of emolument other than the results of their own work.

DUBLIN HOUSING.

The Corporation of Dublin has decided to float a loan of £1,000,000 to be applied to improving the housing conditions of the city. The Irish banks have underwritten the loan, which is to bear 4½ per cent. interest, and will be issued at 95. The Corporation is to be congratulated on the good terms it has got, which, indeed, speak highly for the credit of the city. It is hoped that the project now to be set on foot may better finally the age-long problem of the Dublin slums.

onset was between Oct. 24th and 31st, and two additional cases occurred on Nov. 5th and 6th. All the girls were inoculated, and the new admissions after Dec. 5th remained well. Two outbreaks of milk-borne scarlet fever came to light. One arose from a dairy outside Brighton. Seven of the 50 cases notified were Brighton residents, of whom one died. This outbreak was probably due to the infected throat of a dairy worker. A general practitioner telephoned that he had diagnosed scarlet fever in the son of a dairyman. The next delivery of milk was pasteurised, and this second small outbreak was limited to five cases of scarlet fever and one of sore-throat. In the spring there were 34 milk-borne cases in a neighbouring town. Some of the incriminated milk came to a large dairy in Brighton, where all the milk is pasteurised. No one in Brighton was infected by this milk supply.

Dr. J. S. Harper gives particulars of 66 cases of puerperal fever treated at the sanatorium between January, 1928, and April, 1931. There were 28 cases of simple uterine infection with no deaths; 22 cases of uterine and pelvic infection with two deaths; and 16 cases of general infection with five deaths. Out of 34 (1930–31) cases, in eight forceps were used, and in six the placenta had been removed manually. All the cases were treated by intra-uterine glycerin douches. The cases treated by special drugs were too few to give conclusions as to value, but in none were the results dramatic. In all early cases anti-streptococcal serum was used.

Dr. G. H. Harper-Smith reports on the clinic for mental disorders opened in January, 1926. This clinic has been attended by 459 patients, of whom only 21 have been certified, and there is a suggestive decrease in the number of patients certified from Brighton during the year 1930 as compared with 1929.

Norwich.

Dr. V. F. Soothill says that the public assistance infirmary is in a very unsatisfactory state. The buildings are intermingled with the workhouse, and are out of date and inadequate. The health committee is considering the desirability of the establishment of a municipal hospital on a separate site. The city maternity home has 15 beds and a staff of seven midwives, of whom some work on the district. During 1930, 308 women were confined in the home and 205 were attended on the district. The public assistance infirmary also deals with normal and abnormal confinements, and the Norfolk and Norwich Hospital with abnormal only. The city mental hospital, with nominal accommodation for 476 patients, admits 543, whilst the public assistance infirmary has beds for 120 mental cases. On Sept. 1st the council opened an institution for female mental defectives, and the public assistance infirmary is approved for the reception of six male and 20 female adult defectives. Until the council has decided the future of the public assistance institution, the question of more intimate coöperation with the voluntary hospitals will have to remain in abeyance. In the meantime there is a demand for more hospital beds for surgical tuberculosis, orthopædic work, and rheumatism. About half the admissions to the voluntary hospitals are from outside the city.

Housing conditions are slowly improving. The municipal houses built during 1930 numbered 315, whilst 45 closing orders were made and 11 houses were demolished. The five-year programme provides 300 houses per year for new housing, and 250 to rehouse the tenants from condemned houses or slums. This scheme, when completed, will, says Dr. Soothill, still leave a good deal of clearance to be done in later years, seeing that insanitary areas represented under the 1925 Housing Act have not been dealt with. Cases of overcrowding are continually brought to the notice of the health department, and during 1930 81 such cases were passed on to the housing committee as applications for municipal houses. In order to secure a prompter remedy, the housing committee has agreed to allocate to the health committee 35 houses for persons in unhealthy or overcrowded houses unable to obtain a corporation house under the regulations of the housing committee. At the end of the year, 11 of these houses were occupied, and it is intended that the health committee shall have, from time to time, at its disposal a number of houses to be used for urgent health purposes. Cellar dwellings have been done away with, and Dr. Soothill thinks the limitation of basement work-places should be taken in hand.

Early in 1927 one of the 29 midwives practising in the city was suspended as a carrier of hæmolytic streptococci. Her claim for compensation was finally settled in 1930 by the payment of a further sum of £250. Another midwife was suspended in March, 1929, for the same reason; the suspension being removed in January, 1930, after three negative swabs had been taken from her throat. One of the municipal midwives was also suspended from July until August for the same reason. Diphtheria was less prevalent. There were 118 cases with seven deaths. Of the six children who died, five were attending one school. Of 13 cases of paratyphoid fever, eight occurred in one institution about the same time, but no cause was assigned for this outbreak.

MENTAL HOSPITAL REPORTS.

THERE were 893 patients in the BRIGHTON COUNTY BOROUGH MENTAL HOSPITAL at HAYWARDS HEATH on the last day of last year. Most unfortunately it has been necessary to receive a number of imbecile children into this institution, as the contract for keeping them at Hellingly has expired and no other accommodation is available. The death-rate for the year was 9·17 per cent. and the recovery-rate 35·67 per cent. The general health was good; eight patients were notified as suffering from tuberculosis and seven men had erysipelas, but there was no epidemic disease. Eight patients suffering from general paralysis were sent to Hellingly for malarial treatment: one died and, of the four returned to Haywards Heath, one has been discharged. On an average there have been 17 men and 14 women on full parole and 56 men on parole within the grounds; 13 men and 16 women have had short leave of absence and many more have had day outings with friends or members of the staff. The hospital now has three social workers who do excellent work among the patients and their friends. Sketch plans for an admission hospital have been passed. The out-patient department at Brighton, which opened in January, 1926, has now seen 459 cases, 107 new ones having attended during last year The medical superintendent of the hospital has been appointed honorary physician on the staff of the Royal Sussex County Hospital and sees patients there once a week. The dentist attended 824 patients during the year. Forty-nine men and 38 women of the staff of 153 are certificated or registered as mental nurses.

The CITY OF BIRMINGHAM had 2310 patients in its mental hospitals on March 31st last. The death-rate for the year was 5·4 per cent. At WINSON GREEN there were 771 patients on the last day of 1930, and the recovery-rate was 45·65 per cent. and the death-rate 4·91 per cent.—the lowest in the history of the hospital. Post-mortem examinations were made in 91 per cent. of the deaths. The general health was very satisfactory; there was a mild epidemic of dysentery affecting five patients, while 10 patients suffered from erysipelas and one attendant from diphtheria. Four patients suffered from tuberculosis. As is the custom in the Birmingham hospitals, patients were examined by the visiting ear, nose, and throat specialist, and a large proportion of them were found to be suffering from septic tonsils or chronic nasal sinusitis; a number of operations were performed, with encouraging results. The visiting gynæcologist examined 85 women and the visiting dentist saw all new cases. The visiting surgeon performed five major operations. Six men and three women were treated by induced malaria and 14 men and one woman by intramuscular injections of colloidal sulphur. No benefit was found after sulphur in dementia præcox, and it is yet too early to estimate its effects in general paralysis. The results of early ultra-violet ray treatment were disappointing. Parole was granted to as many patients as possible, and over 65 per cent. were kept usefully employed, mostly in the grounds, wards, or hospital services. Of the nursing staff 67·6 per cent. now hold the R.M.P.A. certificate. The adjoining fever hospital with grounds of 7¼ acres was taken over by the Mental Hospitals' Committee towards the end of last year. The nurses' home there will provide accommodation for 100 nurses and the five detached blocks are to be used for some 200 women patients.

GLOUCESTER had 1237 patients in residence at its COUNTY AND CITY MENTAL HOSPITALS *at* WOTTON and CONEY HILL at the end of last year. Consideration is being given to means of reducing the present overcrowding. The recovery-rate was 34·96 per cent. and the death-rate 5·49 per cent. These excellent figures are ascribed by the medical superintendent to the improvement in diet and hygiene of recent years, and also to the higher standard of nursing. The hospital gardens supplied an exceptionally large quantity of fresh fruit for the patients. The general health was good; there were four cases of enteric, five of erysipelas, two of scarlet fever, two of diphtheria, and nine of pulmonary tuberculosis. The system of parole has been extended, but is only allowed to men. An out-patient clinic has been opened at the Gloucestershire Royal Infirmary. A pharmacist and a trained laboratory assistant have been appointed, together with a complete staff of visiting specialists. General paralysis is now being treated with malaria. Every effort is made to keep the patients usefully employed; 502 were working during the year in the service of the hospital. A canteen has been opened and has proved self-supporting. During the year 10 men and 15 women nurses obtained their R.M.P.A. certificate, bringing the total certificated to 40 men and 36 women.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED SEPT. 19TH, 1931.

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 45 (last week 19); scarlet fever, 1750; diphtheria, 948; enteric fever, 43; pneumonia, 583; puerperal fever, 27; puerperal pyrexia, 116; cerebro-spinal fever, 24; acute poliomyelitis, 7; acute polio-encephalitis, 3; encephalitis lethargica, 14; dysentery, 51; ophthalmia neonatorum, 98. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Sept. 22nd-23rd was as follows: Small-pox, 55 under treatment, 5 under observation (last week 43 and 3 respectively); scarlet fever, 1184; diphtheria, 1350; enteric fever, 15; measles, 95; whooping-cough, 357; puerperal fever, 15 (plus 10 babies); encephalitis lethargica, 215; poliomyelitis, 9; "other diseases," 94. At St. Margaret's Hospital there were 16 babies (plus 12 mothers) with ophthalmia neonatorum.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 2 (1) from enteric fever, 10 (1) from measles, 3 (0) from scarlet fever, 21 (4) from whooping-cough, 25 (1) from diphtheria, 44 (8) from diarrhœa and enteritis under two years, and 27 (5) from influenza. The figures in parentheses are those for London itself.

The fatal case of enteric fever outside London occurred at Norwich. Two deaths from measles were reported at Bradford. Four fatal cases of whooping-cough occurred at Liverpool, 3 at Manchester, and 2 each at Birmingham and Newcastle-on-Tyne. Liverpool and Leeds each reported 4 deaths from diphtheria, Halifax 2. Diarrhœa was credited with 6 deaths at Liverpool, 4 at Hull, and 3 at Bolton.

The number of stillbirths notified during the week was 277 (corresponding to a rate of 43 per 1000 births), including 53 in London.

OBITUARY

MARK PURCELL MAYO COLLIER, M.S. Lond., F.R.C.S. Eng.

Mr. Mayo Collier, who died on Sept. 20th at the age of 74, had retired from active practice a good many years ago, and had made his home at Kearsney Abbey, in Kent. He was the son of G. F. Collier, physician-in-ordinary to George IV. and William IV., and was educated at Godolphin Grammar School, Hammersmith, University College, London, and St. Thomas's Hospital. Qualifying as L.S.A. in 1878 he went to the Turko-Russian war in medical charge of the Dardanelles expedition. Returning to England he held a number of resident posts at St. Thomas's Hospital, graduated as M.B. with honours in 1881, and was appointed surgeon to the throat and ear department at the North-West London Hospital. At one time he was also assistant demonstrator of anatomy and physiology at the London Hospital Medical College, and later, in 1889, he was professor of comparative anatomy and physiology at the Royal College of Surgeons. His various interests expressed themselves in a book on the "Physiology of the Vascular System" and in research on the mechanism of the heart beat (1887), as well as in numerous papers on general surgery. He soon joined the full surgical staff of the North-West London Hospital, but remained in charge of his old department and paid close attention to his specialty. He held office as president of the British Laryngological Society some 30 years ago, and was elected an honorary member of similar societies abroad. At the same time his outlook was unusually broad, and comprised many branches of medicine besides the one he made his own. As an author he collaborated with Morell Mackenzie in a book on "The Hygiene of the Vocal Organs," and with Lennox Browne in "Diseases of the Throat and Nose." His independent work included studies of mouth breathing, progressive deafness, and intermittent nasal obstruction.

Mr. Collier married, in 1901, Florence, daughter of the late Dr. Spooner Hart, of Calcutta, and Corowa, New South Wales. She survives him.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt.-Comdr. A. G. Bee to be Surg.-Comdr.

Surg. Lts. E. T. S. Rudd and R. C. Foster to be Surg. Lt.-Comdrs.

ROYAL NAVAL VOLUNTEER RESERVE.

Surg. Lt. F. M. B. Allen to be Surg. Lt.-Comdr.

Surg. *Sub-Lt. C. P. Collins to be Surg. Lt.*

The following appts. are notified: Surg. Lt.-Comdrs. G. F. Abercrombie to *Malaya*, and St. G. B. D. Gray to *Repulse.*

ROYAL ARMY MEDICAL CORPS.

Maj. E. C. Lambkin retires on retd. pay.

Lt. E. F. Hunt relinquishes his temp. commn.

REGULAR ARMY RESERVE OF OFFICERS.

Lt.-Gen. Sir T. H. John C. Goodwin, K.C.B., C.M.G., D.S.O., late R.A.M.C., having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

TERRITORIAL ARMY.

Lt. J. D. Robertson to be Capt.

INDIAN MEDICAL SERVICE.

Lts. E. A. R. Ardeshir and P. L. O'Neill to be Capts. (prov.).

Lt.-Col. J. V. MacDonald retires on account of ill-health.

CORRESPONDENCE

ECONOMY IN THE SOCIAL SERVICES.

BASIC PRINCIPLES.

To the Editor of THE LANCET.

SIR,—You have opened your columns to a discussion on economy in the social services, and I have read the views of your eight anonymous correspondents, which would have been of more value to me if I knew the local circumstances of the writers.

Health department expenditure falls under *capital*, on buildings and institutions, and *revenue*, on upkeep and maintenance of these, and actual work in the various sections, which appears mainly as salaries and wages. Every item of capital expenditure is followed by resultant revenue costs. Capital outlay may be for the purpose of replacing existing methods that have proved themselves inefficient, slow, or costly, by means of greater thoroughness, speed, or cheapness; or it may be the result of undertaking a new line of effort not previously attempted at all, and only after the pros and cons have been carefully weighed up by the officers at the head of the department, by the health committee, by the council, and finally by the Ministry of Health. Among the considerations is, of course, that of whether the new proposals can be afforded at the moment or not. Such proposals are most frequently initiated by the medical officer of health, who but rarely submits them to the inevitable criticism without having satisfied himself of their soundness, of which he must be the first judge. He also must watch plans and control designs and equipment to ensure economy and convenience in working. It sometimes happens that he finds it necessary to oppose, on the grounds of cost, unsuitability or inexpedience, proposals that are put forward by enthusiastic members of his committee or subcommittee, and such proposals most often originate from counsels emanating from the heart rather than the head.

But it is in the control of revenue-costs chiefly and most constantly that the medical officer of health who is a good administrator finds his attention most closely demanded. A good administrator should know the work of each subordinate, except that of a specialist medical officer, as well as the latter does himself, and only by such knowledge and constant personal observation can he see leakages in cost, or effort, effectively. Too many people are anxious to start at the top of the ladder instead of climbing up gradually. In a fever hospital this is particularly seen, where observation of fuel consumption, both boiler and domestic, of gas or electricity, of breakages, of drugs, and so forth, have to be carefully watched.

Much depends upon a good matron to check wastage of food. The institution of a swill-tub, while excellent in theory, has been known to lead to much wastage of food, particularly where there are tuberculosis wards. The refuse from a sanatorium pavilion, which is considerable, should be boiled or sterilised before use for animals. The matron, or housekeeper, can effect much economy in the sewing-room, by the cutting up of old blankets, sheets, &c., and using their less-worn parts for patching and mending others. The laundry, too, repays attention to the amount of soda and soap consumed; these account for a very considerable sum per annum. The reducing of all hospital accounts to a costing system will help considerably to point to any items that are showing undue increase week by week, and it may be possible to work out costs of different wards in the same way, though administrative expenses must be watched, or it may be found that detection of a leakage costs more than the leakage itself. Salaries are pretty well standardised, and there are any number of "experts" to see that they are kept at as low a figure as possible, so that we need hardly spend time in considering them. But the number of persons employed needs to be watched, as in the case of hospitals and office staffs, where only too often the numbers are inadequate for the functions they have to perform.

Modification of the aims of the department may have to be made occasionally. Thus it may not be necessary to send so large a proportion of the scarlet fevers to hospitals, substituting pneumonia and measles, though this may not tend to the lowering of expenditure. Serum immunisation offers a prospect of considerable saving by prevention of diphtheria, for example, and should be resorted to on a large scale—e.g., in the schools where the disease is common. Financial saving must, however, not be looked for at once. Coördination, as close as possible, should be effected with all other bodies engaged in social amelioration, to avoid overlapping, and as far as possible the health department should confine itself to preventive measures, leaving actual treatment to the general practitioner or to hospitals. Thus maternity and child welfare centres should concern themselves with their original purpose, that of keeping children well, and should not attempt to treat the sick. The same principle applies to the tuberculosis dispensary, which was never designed to be an out-patient dispensary.

Many of us are now finding the late poor-law hospital grossly inadequate, owing to its treatment as in-patients of a large proportion of cases who could quite well remain at home, with occasional visits from a district nurse, if one were available. It may therefore be advisable to set going a district nursing association to relieve the hospital, and save much capital expenditure.

Finally, occasional examination of each of the sections should be made to make sure that it is worth while, and that its staff are all pulling their weight, and necessary alterations and adjustments effected. All schemes involving capital outlay should be very carefully examined, and, if possible, postponed for the present, and only the simplest and least elaborate plans put forward at all, and those only when circumstances absolutely demand.

Most of the suggestions put forward by your previous correspondents seemed to me of the type that any capable administrator is bound to have under his consideration all the time, and the thoroughness of their observation is really a measure of his capability. One suggestion, however, in communication IV. struck me as having its distinct possibilities, viz., the coördination of neighbouring local authorities for the combined purchase of hospital stores, and so economising on quantity and standardising requirements.

I am, Sir, yours faithfully,

H. KERR,
Medical Officer of Health, Newcastle upon Tyne.
Sept. 22nd, 1931.

JOINT COMPLICATIONS OF SCARLET FEVER.

To the Editor of THE LANCET.

SIR,—The annotation on this subject last week (p. 694) is of interest on account of recent work on rheumatic fever and its association with hæmolytic streptococcal naso-pharyngeal infections.

Apart from a pyæmic group, I note that Dr. Zischinsky divides his cases of post-scarlatinal arthritis into early and late developing types. In the former the symptoms appear between the fifth and the twelfth day after the throat infection, in the latter after the twelfth day. His terminology is curious, and it is difficult to understand what he means by "acute rheumatoid arthritis," hence comparison must be guarded. However, I have also observed two types of arthritis occurring after acute hæmolytic streptococcal sore-throats (both scarlatinal and non-scarlatinal). The first type appears on or about the fifth day, and the second later between the eighth and the twenty-first day. In the cases I have observed the arthritic symptoms in the early developing group were of varying intensity, but always cleared up in a few days without further complication, while those in the late developing group were apt to be complicated by carditis. I have to hand the notes of four cases from the latter group. All four developed an acute hæmolytic streptococcal sore-throat; after a silent period of 9, 12, 14, and 21 days respectively polyarthritis appeared, and was subsequently complicated by carditis in every case. In no case was there a previous history of acute rheumatism or carditis.

It is surprising to find therefore that Dr. Zischinsky's late developing group of 102 cases were completely free from cardiac complications. Even taking into consideration the fact that cardiac involvement in acute rheumatism is supposed to be much commoner in this country than on the continent, it is hard to explain this difference if we assume that both are manifestations of acute rheumatism.

It would be of great interest to hear the views on this point of medical officers from fever hospitals in this country.

I am, Sir, yours faithfully,

W. ROBERT F. COLLIS.

Research Department, Hospital for Sick Children,
Great Ormond-street, Sept. 28th, 1931.

THE EXTERNAL SIGNS OF INTELLIGENCE.

To the Editor of THE LANCET.

SIR,—Referring to the review of my book on Brain, Mind, and the External Signs of Intelligence, in your issue of Sept. 26th (p. 690), will you kindly allow me to correct the statement that the author "*derides* laboratory technique, both physiological and pathological." I have done nothing of the kind. All I have endeavoured to demonstrate is that the methods followed hitherto have not led to the discovery of the primary mental functions of the brain, chiefly owing to the false preconceived views which guided the investigator. It is in consequence of this failure that many experts have reverted to the opinion, held a century ago, that the brain acts as a whole and that localisation of mental functions is impossible.

Sixty years ago it was confidently anticipated that experiments on the exposed brains of living animals would "speedily disclose the nature of the mind and the inner working of the brain, and make mental disorders disappear for ever." As is well known, these extravagant hopes have not been fulfilled.

Great results have been expected also from the study of the microscopical anatomy of the cortex of the brain; and, indeed, we have learnt much about the configuration of the various layers of brain cells and their arrangement in structurally differentiated territories. But there still prevail conflicting opinions as to the significance of these discoveries. Brains of men of renown have been cut into as many as 30,000 minute sections, a wonderful feat in itself; yet we have learnt very little from it, not knowing what signs to look for as indicating individual greatness. No one is as yet able to explain why one man's genius should take the direction of a Newton, while that of another develops into a Shakespeare or a Michel Angelo; or why one man should become saintly in character, while another, with the same education and environment, develops a genius for crime.

I have given due credit to the valuable work done by histologists—like Shaw Bolton regarding the pathology of amentia and dementia, and Sir Frederick Mott as regards dementia paralytica—but there is nothing to help us either in the diagnosis or treatment of mental disorders in the living man.

Your reviewer also states that the author "is of the opinion that the brain is as much an organ for the expression of instinct and emotion as it is of intelligence, but he devotes his attention entirely to the cortex, *ignoring the importance of the thalamus in this respect and the part played by the endocrine glands in the governing of temperament.*" This is not true. As regards the functions of the optic thalamus, I have quoted the work done by Sir Henry Head and Dr. Gordon Holmes, who have shown this structure to be the central organ for the conveying of sensations. It is well known, also, that projection fibres ascend from the thalamus to certain regions of the brain, and the evidence produced in my book tends to prove that stimulation of these regions leads to the manifestation of definite emotions.

As regards neglecting "the part played by the endocrine glands," there are no less than seven references to them in my book. One passage (on p. 25) will suffice to explain my view: "Excess of certain glandular secretions can increase specific emotions—such as fear and anger—but they do not create them. The disposition to them must be pre-existent. We all differ in our primary emotions, quite independently of the state of our internal organs and glandular secretions."

This passage may also serve as answer to the further criticism that the author seems "to have ignored the fact, confirmed by biological as well as by neurological studies, that *behaviour is a function of the organism as a whole.*" All depends what we mean by behaviour, whether we include the actions of the primary instincts or refer only to the emotions. Granted, as I have said in my book, that the effect of the latter is an all-pervading one, there must be a centre from which the impulse starts.

In conclusion, I should like to draw attention to the fact, of which everyone who has studied the history of brain research must be aware, that each generation of investigators held dogmatic views which guided them in their methods and influenced their results. To-day, two exactly opposite opinions are held. On the one hand, the British view, endorsed by the highest authorities, that "It is obvious that each region of the cerebral cortex must be of equal functional importance," and the continental opinion (held by the chiefs of the Institutes for Brain Research of Berlin, Vienna, and Leningrad) that "there must be an anatomical basis for the different human capacities and individual talents." Considering these conflicting views, the information contained in my book should prove of value to every investigator, and should be read by every physician interested in the problem of the relation of mental activities to brain functions. And on this point, I am pleased to see, your reviewer seems to agree.

I am, Sir, yours faithfully,
BERNARD HOLLANDER.
Wimpole-street, W., Sept. 28th, 1931.

OPERATIVE TREATMENT OF HYDROCELE.

To the Editor of THE LANCET.

SIR,—In your last issue (p. 680), Mr. Moore calls attention to the value of the cautery in carrying out a radical operation for hydrocele of the tunica vaginalis. From my experience I agree with him that the procedure is well worth adopting. Most surgeons must have had experience of troublesome hæmatomas forming after this operation has been carried out with the knife. However careful one is to use all ordinary methods of hæmostasis they are liable to occur, especially in old-standing cases in which the sac is thickened. For the past four years when operating for hydrocele I have removed the parietal sac as a routine with the diathermy needle. I have also used the actual cautery in a few cases. If it is available, the diathermy cautery is extraordinarily convenient and easy to control, and involves no risk of damaging the body of the testis. With due care similar results are no doubt obtained with the actual cautery. I have several times observed considerable temporary swelling in the testicle following this operation, but not greater than is observed when the older method is used.

I am, Sir, yours faithfully,
Harley-street, W., Sept. 28th, 1931. C. MAX PAGE.

THE STREPTOCOCCAL THEORY OF ACUTE RHEUMATISM.

To the Editor of THE LANCET.

SIR,—In an annotation on p. 694 of your last issue I read the sentence: "Recent research on streptococcal throat infections and acute rheumatic fever has revived interest in the streptococcal theory of rheumatism." May I suggest that the valuable work of Dr. B. Schlesinger, Dr. W. Sheldon, and Dr. W. R. F. Collis, to say nothing of the researches of the American and German schools of thought, have not *revived* interest, but have added *new* interest by striving to open up the path which may lead to the solution of the exact part taken by streptococcal infection in rheumatism? Can the work of Triboulet, Menzer, and Gustav Singer at the beginning of this century be already forgotten? Can the fact—not the theory—that a streptococcus isolated from an acute rheumatic sore-throat could produce in uninjured cardiac valves carditis, and also arthritis, &c., in animals, and be recovered from the lesions in pure culture, ever lose interest in this country where acute rheumatism is so rife? We early investigators feared to dwell too much upon the experiments showing that streptococcal angina faucium was a cause of carditis and arthritis, because we foresaw the hecatombs of tonsillar operations which would follow and have followed, and knew full well that the problem of acute rheumatism was only partially discerned.

The *silent* period before the rheumatism develops after the tonsillitis is now the centre of attention—giving a glimmer of hope that some new discovery as to its meaning may lead us a step nearer in our search for the truth, for a test, and even for a remedy. There may, perchance, be a cause of acute rheumatism unthought of and hidden from us, but I dare to write that streptococcal infection will always prove of interest in the history of this disease, and to think that it will prove to be the exciting cause. It would be grimly humorous to me if I believed that the streptococcal theory had ever lost interest in England; but too much practical work toward prevention of the disease has been done over these 30 years by those who have leaned to the streptococcal theory to make me either cynical or sad.

I am, Sir, yours faithfully,
F. JOHN POYNTON.
Harley-street, W., Sept. 28th, 1931.

HEALTH OF MERCHANT SEAMEN.

To the Editor of THE LANCET.

SIR,—It was a grief to see mention in your last issue of the deaths of Sir William Simpson and Dr. W. F. Dearden, who were both anxious to improve the health of merchant seamen. Sir William Simpson had many other medical interests, through which he will be longer remembered, but he had the welfare of seamen at heart, and at various meetings said weighty words on their behalf. Dr. Dearden did a great deal at Manchester to direct attention to and to improve the conditions of their work. Younger men, interested in the hygiene of the mercantile marine, are coming on, but the cause of the seamen has for the moment lost valued support by the deaths of these experienced advocates.

I am, Sir, yours faithfully,
Tunbridge Wells, Sept. 29th, 1931. W. E. HOME.

ROYAL MEDICAL BENEVOLENT FUND.—The number of new applicants helped by this Fund during the last three months of each year has usually averaged about 33, this being in addition to the grants which have been renewed to old beneficiaries. This year only seven new applications can be considered between now and the end of December unless further support is given. At the last meeting of the committee, 34 grants were voted, amounting to £577 10s. The following are particulars of two cases helped:—

Widow, aged 35, of M.R.C.S. The husband qualified in 193 and a fortnight before he was to sail to take up an appointment in a Medical Service abroad he was accidentally killed at the age of 28. The young widow is left with two infant children a girl of 2 years and a boy of 7 months. She has £55 a year. Fund voted £26 in four instalments. Personal service and possible further help will be given.

Widow, aged 38, of M.B. Husband died in November, 1930, at the age of 47. The widow is left with two boys, ages 9 and 6, to educate. She is suffering from encephalitis lethargica, and is quite incapable of earning a living or even attending to her household affairs. A medical man in supporting the application writes "that the case is deserving of the utmost possible help." The widow is left with 30s. a week. Fund voted £26 in four instalments. Other societies are being approached to coöperate in this case.

BRIGHTON SEWER OUTFALL.—On Sept. 23rd the reconstructed sewer outfall and pumping plant at Portobello, some miles eastward of the centre of Brighton, was formally opened. The outfall has now been carried considerably further out to sea, and the pumping plant enables the sewer to discharge at all states of the tide. Hitherto, the discharge has been restricted by the fact that when the tide rose to the level of the sewer it entered it. An electrically operated sluice-gate now excludes the sea, pumps raise the sewage over the gate, and then by gravitation the sewage delivers itself into the sea. The total cost of the work was £78,000. It was the scheme of Mr. David Edwards, surveyor and engineer to the Sewers Board and Borough Surveyor of Brighton, and it displaced an earlier scheme for which the figure was £110,900.

PANEL AND CONTRACT PRACTICE

EXCESSIVE CERTIFICATION: ITS REAL CAUSE.

"HAVING read with care your report (August 8th, p. 320) of the debate in the House of Commons on excessive certification," writes Rural Panel, "I have been waiting for someone to expose the real cause of the increase in certification which was hardly mentioned in the debate. In their excellent analysis (Sept. 12th, p. 603) the Paddington Medical Society get nearer to the truth, but still no one appears to have the courage to state clearly and emphatically that in the present state of medical science doctors are not capable of distinguishing definitely in every case the malingerer or semi-malingerer from the genuine unable-to-work case.

"In the past it has been assumed that some 99 per cent. of patients who claim a certificate are genuinely incapable of work. Every panel doctor knows that that percentage is rapidly decreasing from a variety of causes, the chief of which are economic factors due to industrial depression and unemployment, and a greater knowledge of, and pertinacity in claiming their 'rights' by insured patients. The public appear to consider that increased claims should be dealt with by the insurance practitioner refusing to certify any but the genuine cases and that therefore increased certification must, apart from an actual increase in sickness, be due to laxity on the part of the doctors. It is not nearly so simple as that.

"Every doctor knows that a large number of serious organic lesions are heralded in their early stages by subjective symptoms only. Every doctor can quote a dozen cases where complete investigation in a hospital or by a consultant has resulted in a diagnosis of hysteria, neurosis, or malingering, only for some serious or mortal complaint to develop subsequently. To mention only a few, the early stages of caries of the spine, cerebral tumour, tuberculosis of the lungs or intestine, or disseminated sclerosis may have no physical signs. On the grounds of humanity alone the panel doctor must give the patient the benefit of the doubt, and on other grounds if he has once refused a certificate to a patient who later dies of, say, a growth of the lung, he is not likely to repeat it. No one likes to think of his late patient's relatives going round saying 'Dr. X. said he couldn't find nothing wrong with him, and didn't see why he couldn't work—and we're a'burying of him to-morrow.' The point I wish to emphasise is that such errors are not due to incompetence or scamped examination, but are inherent in the present state of medical knowledge.

"What is the remedy? An increase in the number *of cases referred to the regional medical officers?* Not necessarily. Except in so far as the passage of time may reveal or fail to reveal the development of some physical signs the R.M.O. is no more likely to be certain of discriminating such cases as I have mentioned from malingerers or neurotics than the patient's panel doctor. It seems to me from practical observation that the R.M.O's. function is not so much to check or correct the opinion of the panel practitioner as to ability to work, but to scare the fraudulent claimant into signing off under the vague menace of a doctor of superior powers who will see through his claim. There are undoubtedly a certain number of genuine claimants who are declared fit by the R.M.O. but who cannot and do not resume work. At the same time, the R.M.O. clearly has his place in preventing excessive certification and instead of approved societies referring patients indiscriminately (and in many cases ridiculously) as they do at present, it should be made easier for the insurance practitioner to refer doubtful cases.

"At present the coöperation of the panel doctor in saving the funds of the societies is made too difficult. It could be made easier in three ways.

"1. Certain diagnoses could be referred to the R.M.O. automatically—e.g., anæmia, debility, gastritis, neurosis, neurasthenia, and hysteria. A practitioner certifying a patient as unfit from any of these causes would know that the case would come under revision; and his patient would not know.

"2. *I have several times written in the space for remarks:* 'Please refer to R.M.O.' and nothing has been done about it to my knowledge. This could be remedied.

"3. The form by which a practitioner can refer cases to the R.M.O. could be simplified and addressed, prepaid envelopes supplied.

"More important, however, than a greater discrimination in cases referred to the R.M.O. I regard an increase in sick visitation by the societies. Rules should be strict and the genuine case will keep to them; the fraudulent should be made to feel that the game is not worth the candle. Lastly, cases that are proved not to be genuine, admittedly a difficult matter, should be proceeded against by their societies and examples made of them—and published. To my mind the root of the trouble is that the approved societies have two conflicting aims. On the one hand they wish to attract members to their own particular *society and keep them contented when* enrolled; on the other, they wish to safeguard their accumulated funds. The unfortunate panel doctor has to hold the balance and in the present state of economic depression his medical knowledge will not enable him to do so."

MEDICAL DEFENCE UNION: ANNUAL MEETING.—The annual general meeting of the Medical Defence Union was held in London on Sept. 24th. Dr. W. S. A. Griffith, the acting president, who presided, began by referring to the death of Sir Herbert Waterhouse, the late president, and of Dr. Hedley Hill, Dr. W. Tracy Lydall, and Dr. Seymour Taylor. He went on to congratulate the members upon the steady growth and continued prosperity of the Union. When he (Dr. Griffith) vacated the office of president in 1901, the membership was 4605 and the accumulated fund stood at £918. The membership was now 16,587 and the accumulated fund £55,780. The weight and influence of the Union had steadily increased, and there was *no difficulty with which a practising doctor* is liable to be confronted, in which he could not derive great advantage from the experience which the Union had acquired. It was stipulated, however, that every member applying for assistance must be in benefit—that is his subscription must not be in arrear—and there must be a *professional* principle involved. Further, the Council reserved itself absolute discretion whether and in what manner it would accede to the member's request. It had recently been decided that a candidate when elected should be in benefit from the date of the receipt of his subscription. Unfortunately, said Dr. Griffith, there were still many practitioners who allowed themselves to remain unprotected against the attacks of unscrupulous persons and their own errors. Everyone engaged in practice should join one or other of the defence societies, and having joined should pay his subscription regularly and consult the secretary at the first hint of trouble.

The report of the Council and the financial statement for 1930 were adopted unanimously. Dr. W. S. A. Griffith, Dr. V. A. Jaynes, and Dr. A. Lyndon, the retiring members of Council, were re-elected.

PARLIAMENTARY INTELLIGENCE.

NOTES ON CURRENT TOPICS.

THE Finance No. 2 Bill was read a second time in the House of Commons on Wednesday, Sept. 23rd.

HEALTH INSURANCE CUT—CONCESSION TO DOCTORS.

On Friday, Sept. 25th, the House of Commons further considered the National Economy Bill in Committee. Captain BOURNE, Deputy Chairman of Committees, was in the chair.

On the schedule, which enumerates the services in respect of which Orders in Council may be made under the Bill,

Mr. RHYS DAVIES moved to leave out the reference to National Health Insurance. He said that this subject had not been very clearly explained. What had happened was that the Minister of Health and his Department in the statement made in the White Paper would lead the nation and the House of Commons to believe that the panel doctors had been gracious and generous enough to hand over to the Treasury £850,000 per annum of their own money. The case was not exactly like that. On the second reading of the Bill the Minister of Health had said: "The result is that the effect of the proposal to deduct a certain proportion of the remuneration of doctors and chemists, and to return the deduction to the Exchequer, is that you give back to the Exchequer something which the Exchequer had already paid out for another purpose." That did not seem to be very clear. What happened, apparently, was that the Minister of Health went to the British Medical Association and said "the pound sterling is languishing from nervous debility, and our export trade is suffering from Bright's disease," and the Association was asked to come to the rescue of the pound sterling. The panel doctors were paid a 9*s.* capitation grant in respect of each of the 15,000,000 insured persons. With the exception of a very small contribution from the Exchequer, the whole of the 9*s.* came out of the funds of the approved societies. It might be rightly assumed that if any reduction was made in the 9*s.* paid to the doctors it ought to accrue to the funds of the societies from whence it came. The whole of this contract for a reduction was practically completed before the approved societies had a chance to say a word about it. It was reported, however, that the representatives of the societies had agreed to what had been done. That was typical of the Minister of Health. It was unfortunate that these funds were continually being raided by almost every successive Government. Mr. Churchill had taken away £2,250,000 per annum from these funds, and the present Minister of Health now proposed to take away about £1,000,000 per annum. The Minister of Health contended that the money which he was taking from the doctors and chemists would go back to the funds of the scheme and would relieve the State contribution to exactly that amount. He (Mr. Davies) had never heard of such financial jugglery. It was an astonishing fact that it was only in respect of National Health Insurance that the cuts proposed by the Government went very much beyond the demands contained in the recommendations of the May Committee.

Mr. CHAMBERLAIN (Minister of Health): Will the hon. Member explain how he arrives at that conclusion?

Mr. DAVIES said the May Committee suggested a saving on health insurance of only £1,000,000, but this Bill proposed a cut of £1,100,000. He would like to know whether they would get the same service from the doctors for 8*s.* as they now got for 9*s.* Since the Minister of Health made this arrangement with the chemists one of the largest firms had asked their staff to accept a reduction in wages as a consequence of the reduction in grant. The result would be that this firm would make a profit out of the transaction. He would also like to know if the Government were going to relieve themselves of the responsibility for a grant to the Central Fund. The Exchequer grants to these funds had fallen from £10,250,000 in 1921 to £6,250,000 in 1930, in spite of the fact that the number of insured persons had increased almost every year. If this process continued the time would come when the State would wipe its hands clean of this scheme. He did not criticise the professional work of the doctors, but he was very much afraid that as a result of these reductions they would increase their charges to non-panel patients, and in the end he doubted whether the doctors would suffer much.

Dr. MORRIS-JONES: Is the hon. Member aware that whereas the panel doctors have suffered a cut of over 10 per cent. no reduction has been made in the amount given to the approved societies for administration?

Mr. DAVIES: If this Government unfortunately lasts long enough that may come down also.

Dr. MORRIS-JONES: It ought to come down now.

Mr. DAVIES said that perhaps the societies would do what the Navy did and "larn them a lesson." He was astonished that the Minister of Health, who had been searching every nook and corner, had left out the dentists and opticians. In 1913 there were 12,674 panel doctors; in 1930 there were 15,750. The average annual income of each panel doctor rose from £304 in 1913 to £463 in 1930. He did not think that the medical profession was overpaid, though the May Committee made a very scathing attack upon the capitation payment to doctors from insurance funds. They said that the local and municipal authorities found it very difficult to secure the services of medical men because the fees under the National Health Insurance scheme were so much higher than they were prepared to pay. There had been an increase in the fees of the doctors from £3,750,000 in 1913 to £7,250,000 in 1930. Those who had anything to do with the administration of these funds felt very sad about the present situation, because the result must be that benefits would be reduced. Statutory benefits would not be reduced at the moment, but dental, optical, and convalescent home benefits, as well as distress grants, would probably go by the board. It had been said that the Government had been very generous in securing £142,000 so that the societies who were not able to meet the statutory benefits would be helped from the Central Fund. That was called the partial pooling of surpluses. Once they began to pool surpluses in the end there would be no surpluses to pool. It had been highly gratifying to note the beneficial results on the health of the community of National Health Insurance. This country had practically the lowest general mortality-rate in the world. The infantile mortality-rate had declined by a half in one decade, and the excellent contribution of the panel doctors and the approved societies had helped considerably to achieve that object.

THE MINISTER'S REPLY.

Mr. CHAMBERLAIN expressed astonishment at the speech of Mr. Davies, who, he said, really did know something about National Health Insurance. There was not a shadow of excuse for his attempt to represent the action proposed as a raid on the funds the societies. A sum of 15*s.* a head was allowed be set aside for medical benefit under the Act, an out of that sum 9*s.* represented the remuneratio given to the doctors. It was true that in the ordinary course the effect of any reduction would benefit the funds of the societies. But this was not the ordinary course of procedure. This reduction was never discussed upon merits but as a contribution by the doctors and chemists to national needs. If they had been asked to give up 1*s.* simply for the sake of benefiting the funds of the societies they would have refused and have fought the case from one end to the other. Mr. Davies appeared to have become confused as to what the May Committee recommended and what in fact the Government proposed to do. The contribution of the doctors was identically the same as the May Committee had recommended. The Committee estimated the saving in a full year at £750,000, but a closer estimate showed that it would be £850,000. It was true that the May Committee did not recommend any reduction in the remuneration of the chemists, but if the doctors were asked to make a contribution it was only reasonable that the chemists should do likewise, and they at once accepted it. A further difference between the proposals of the Government and those of the May Committee was that the latter included £100,000 to be saved by the non-extension of the Act. A slight alteration had been made in the proposals embodied in the White Paper. In accordance with the announcement of the Prime Minister certain alterations were going to be made in the cuts originally proposed in the pay of the police and the salaries of teachers. The cut from 9*s.* to 8*s.* in the case of the doctors represented a larger percentage—namely, 11 per cent. compared with 10 per cent.—and it seemed to him to be unfair to them, and inconsistent with the general scheme of the Government, that the doctors and the chemists should be left out of the scope of the proposed alterations. Accordingly he had written to the Insurance Committee of the British Medical Association and also the Pharmacists Union intimating that the Government proposed to substitute for the original proposals a simple 10 per cent. reduction in both cases. It meant that there would be a rather smaller sum available for saving—about £90,000 in a full year—but he hoped to be able to make that good by savings in other directions. Mr. Davies had touched upon the withholding of the State grant of £142,000 from the Central Fund. Anyone would suppose, from what the hon. Member had said, that this also was an attempt to raid the funds of the approved societies. But no one knew better than the hon. Member that the societies were very much relieved at the proposals of the Government in this connexion, because they realised that owing to the enormous increase in the claims for sickness benefit the position of the societies after the next valuation was going to be much less satisfactory than after the last. In fact, in some cases there might be societies who without outside help would not be able even to meet the statutory benefits. In such an event the resource available was the Central Fund, and it was to the interest therefore of the whole system, and of the weaker approved societies in particular, that the Central Fund should be made as strong as possible. That was what the Government were proposing to do. The £142,000 which would fall to be paid this year from the Exchequer would not be paid, but instead of that the Central Fund was to get £300,000 a year which it had not before, and, further, it was to get arrears of the £300,000 since 1928, which would amount to something like £1,000,000 to start with. So that the Central Fund would be in an unassailable position and able to guarantee the standard benefit all round. He thought he had shown conclusively that Mr. Rhys Davies's allegations or insinuations had no foundation whatever. So far as the approved societies were concerned, they would be made stronger, and not weaker, by the Government proposals.

Mr. THOMAS LEWIS supported the amendment. He said if there was to be a reduction in expenses, whether in regard to the fees of the medical profession or in any other way, National Health Insurance required the funds. He thought it was a wrong thing to take this money away from the approved societies. He was afraid, from an answer given by the Minister of Health a few days ago, that the measures for preventing maternal mortality, which were so imperative, were going to be delayed. Whatever might be the result of the present proposals, he hoped that the Minister of Health would keep in mind the question of the new maternity service and not allow it to go by the board.

Dr. MORRIS-JONES said he felt sure the medical profession would be pleased at the offer which had been made by the Minister of Health. It would have been hardly right, after the profession had accepted the cuts, not on their merits but simply as a gesture in this time of emergency, if they had been penalised for accepting quietly what a large number of other professions had not accepted. He was disappointed at the attitude of Mr. Davies. He would have expected the hon. Member to say that the medical profession in this instance had behaved extraordinarily well. It would have been a gracious act on his part as an administrator of the approved societies. While thanking Mr. Chamberlain for the concession he had made, he would like the right hon. gentleman to consider on what principle of equity the 4*s.* 6*d.* a head allowed for administration expenses of the approved societies remained unaltered. On the whole, the financial situation of the societies was such that they could bear with perfect equanimity a small reduction per head of administration expenses. This would give the approved societies an opportunity of following the very patriotic example of the medical profession.

The amendment was rejected by 237 votes to 153.

ECONOMY CUTS AND NATIONAL FITNESS.

On Monday, Sept. 28th, the House of Commons further considered the National Economy Bill in Committee. Captain BOURNE, Deputy Chairman of Committees, was in the chair.

On a motion by Mr. JOHNSTON to leave out the reference in the Schedule to Unemployment Insurance,

Dr. HASTINGS said that during the past week they had talked a great deal about the gold standard, and whether it ought to be maintained or not. He thought that the man standard of this country was of even greater importance. We could not afford to neglect anything which would help to maintain our man power, whether employed or unemployed, at the highest possible level of fitness and efficiency. We must depend upon such efficiency in producing the goods which were required to pay for our food and other imports. If the standard of living of the unemployed was lowered, the consequences might be serious. When an unemployed man found a difficulty in obtaining work he felt that he was not wanted, and if, added to that, he had to face destitution, the mental effects might be serious. Fortunately, in this country, we had not seen anything of that kind, but in other countries, where the unemployed were differently treated, it had led to a great increase in suicide and crime.

The amendment was rejected by 296 votes to 243.

ECONOMIES IN NATIONAL HEALTH INSURANCE.

On Tuesday, Sept. 29th, the House of Commons completed the committee stage of the National Economy Bill.

Dr. DRUMMOND SHIELS, speaking against the motion for the third reading of the Bill, referred to the proposed economies in National Health Insurance. He said that not very much had been said about the doctors and chemists. He had always found that it was very difficult to work up sympathy in the House of Commons for doctors and sometimes for chemists, but they were said to have taken their medicine without flinching. It had been hinted by one hon. Member that when they agreed to the cuts they were unaware that more income and petrol taxes were awaiting them. What was their present state of mind was not stated, but here again the real attack was not on the doctors and the chemists but on the social service of which they were a part. The Royal Commission had shown that the National Health Insurance system, while good as far as it went, was quite inadequate. Hon. Members knew that the improvement of specialist service, of services for dependents, and many other developments were required before national insurance could be said to be an adequate service for its purpose. Yet instead of improvements they now had this setback, and the standard of working-class medical service was definitely lowered compared with that of other sections of the community.

Lieut.-Colonel FREMANTLE: Will the hon. Member explain if he really suggests that through this Bill, or in the White Paper, there is any suggestion that we shall cut down the consultant services?

Dr. SHIELS: No, but the hon. Member knows that I was not referring to that but to the development foreshadowed by the Royal Commission, and I want to point out that National Health Insurance is a vital service, and in view of the wonderful developments of medical and surgical skill, such services ought to be available in full and ample measure to the very humblest members of the community. They are not so now and the effect of this Bill in regard to these services is definitely to lower its status. —The Bill was read the third time by 297 votes to 242.

The measure was afterwards introduced by the Marquess of READING in the House of Lords and read a first time.

HOUSE OF COMMONS.

WEDNESDAY, SEPT. 23RD.

Health Services in African Colonies.

Mr. HORRABIN asked the Secretary for the Colonies whether the grants or loans, made or approved, towards technical education, the training of African dispensers, sanitary inspectors, &c., would be affected by the proposed reductions in the Colonial Development Fund; and whether further grants or loans of this kind were to be discontinued. —Mr. THOMAS replied: The answer to the first part of the question is in the negative. As regards the second part, schemes submitted by Colonial Governments will be considered, as in the past, on their individual merits, but regard will be paid to the consideration set forth on page 8 of the White Paper (Cmd. 3952) and to the reduced funds available.

THURSDAY, SEPT. 24TH.

Housing in Rural Areas.

Mr. PERRY asked the Minister of Health if the operation of the Housing (Rural Workers) Act, 1931, was to be suspended or restricted as part of the Government's economy policy; and, if so, what steps would be taken to meet the need for more and cheaper houses in rural areas.—Mr. CHAMBERLAIN replied: There is no intention of repealing the Housing (Rural Authorities) Act, 1931, to which I assume the hon. Member refers. Applications from rural district councils under this Act are still coming in, and in accordance with Subsection (3) of Section 1 all such applications will be eligible for consideration provided that they are made before Nov. 30th next. In accordance with the Act applications will be first considered by the committee appointed by my predecessor, of which the Paymaster-General is chairman.

Mr. PERRY: Are we to understand that the Government intend to proceed with this work?

Mr. CHAMBERLAIN: Yes, Sir.

Mortuary Accommodation in Yorkshire.

Mr. TURTON asked the Home Secretary whether his attention had been called to the coroner's inquest, on August 7th, on Wilfred Armstrong Rhodes, at Asenby, in the North Riding of Yorkshire, and to the fact that during the interval of three days between the recovery of the body and the holding of the inquest the body was laid in a shed; and whether he would take steps to secure that all proper provision was made for the housing of the body during such interval, so as to prevent distress to the relatives and the neighbourhood.—Sir H. SAMUEL replied: My attention had not been drawn to this case, but I have made inquiry and consulted the Minister of Health. I understand that no other accommodation in the nature of a mortuary was available, and the Minister informs me that the circumstances are such that he does not feel justified in pressing the local authority to provide a public mortuary.

Mr. TURTON: Will the right hon. gentleman take steps to see that the inquest takes place as soon after the death as possible and not after a delay of three days; and also to see whether it is possible that the body shall be housed in a more suitable place than a garage?

Sir H. SAMUEL: I will bear in mind the hon. Member's suggestion.

Specialist Advice for Prisoner in Parkhurst.

Sir COOPER RAWSON asked the Home Secretary why permission was refused by the governor of His Majesty's prison at Parkhurst for a heart specialist to visit a prisoner, a previous patient, who was suffering from angina pectoris; and whether it was possible to make any exception.—Sir HERBERT SAMUEL replied: The prisoner in question has been free from heart attacks during his sentence. He is receiving all necessary medical care and attention and, if necessary, the prison medical officer could call in a specialist. In these circumstances there is no reason for taking any exceptional course.

Maternal Mortality.

Dr. PHILLIPS asked the Minister of Health if he had yet received the final report of the departmental committee on maternal mortality and morbidity.—Mr. CHAMBERLAIN replied: No, Sir, but I understand that this report is now in preparation, and it will be completed as soon as practicable.

Approved Societies and Rheumatic Treatment.

Mr. PHILIP OLIVER asked the Minister of Health how many approved societies had included in their schemes of additional benefit particular benefits in respect of special treatment for rheumatic diseases.—Mr. CHAMBERLAIN replied: Five hundred and fifteen approved societies and branches have included in their schemes of additional benefits the particular additional benefit No. 16 under which special treatment for rheumatic diseases would be possible.

Feeding of Necessitous School-children.

Mr. TINKER asked the President of the Board of Education the number of local education authorities who had put into operation the feeding of necessitous school-children: and if he would give the latest figures of the number of children being fed.—Sir DONALD MACLEAN replied: In the week ending July 18th, 134 local education authorities made provision for the feeding of school-children. The number of children receiving meals was approximately 154,500, of whom 101,500 were necessitous children receiving meals free of charge.

Salaries of School Medical Officers.

Mr. BENJAMIN GARDNER asked the President of the Board of Education whether school medical officers were included among the officers other than teachers referred to in Circular 1413, issued Sept. 11th, 1931; whether his department had opened any negotiations with the British Medical Association in the matter of reductions of school medical officers' salaries; and, if so, whether he would communicate the result of any such negotiations to education authorities for the authorities' guidance, so that there might be a scale or scales of reductions generally acceptable and applicable throughout England and Wales.—Sir DONALD MACLEAN replied: The answer to the first part of the question is in the affirmative. I have not opened any negotiations with the British Medical Association in the matter of school medical officers' salaries, and the third part of the question does not therefore arise.

Safeguards in Regard to Imported Milk.

Lieut.-Colonel GAULT asked the Minister of Health whether, in view of the fact that certain distributors were purchasing milk imported from the Continent in the form of ice blocks, he would state whether the source of supply was subjected to the same tests as the milk produced in England; and, if not, whether he was prepared to take the necessary steps to protect English farmers from this kind of competition.—Mr. CHAMBERLAIN replied: The laws as to adulteration apply equally to liquid and frozen milk, and to imported and home-produced milk, with the added safeguard in the case of imported milk that it is subject to sampling at the time of importation. The regulations also require that imported milk should be free from tubercle bacilli and should not contain more than 100,000 bacteria per cubic centimetre. I am advised that these conditions are at least the equivalent of those which apply to English milk.

MONDAY, SEPT. 28TH.

Opium Exports from India.

Major GRAHAM POLE asked the Secretary of State for India if he would give the figures relating to the year 1930–31 and to the four previous years showing the amount of opium exported by the government of India and the total revenue received by the government of India on this account.—Sir S. HOARE replied: The amount of opium exported from India during 1930-31 and four previous years was as follows:—

	Ounces.		Ounces.
1930-31	9,558,480	1927-28	18,230,840
1929-30	13,392,800	1926-27	26,251,592
1928-29 ..	11,031,975		

The gross revenue (before deduction of charges including the cost price of opium) derived from the export of opium in the financial years from 1926 was as follows:—

1929-30	£1,733,071	1927-28	£2,300,950
1928-29	£1,926,093	1926-27	£2,036,139

Figures for 1930-31 are not yet available.

Pension Claims.

Major COHEN asked the Minister of Pensions the number of claims submitted outside the seven years' time limit during the past 12 months; and the number admitted during that period either by way of award of pensions or provision of treatment.—Major TRYON replied: During the 12 months ended June last, a diminishing number of new applications, amounting in the aggregate to 11,193, were received. During the same period 13,000 claims were decided, out of which about 680 cases were admitted to pension, 275 were given other forms of pecuniary grant, and 22 were found to require not more than medical or surgical treatment.

Permanent Infirmity of Pension Orphans.

Major COHEN asked the Minister of Pensions, the number of allowances that had been extended beyond the age of 21 to total orphans who were unable to contribute to their own support because of mental or physical infirmity.—Major TRYON replied: Up to the end of June last allowances had been extended beyond the age of 21 to 72 orphans on the ground of permanent infirmity.

TUESDAY, SEPT. 29TH.

Imports of Liquid Milk.

Colonel RUGGLES-BRISE asked the President of the Board of Trade if any liquid milk was being imported into this country, and, if so, the quantity so imported to the nearest convenient date.—Sir PHILIP CUNLIFFE-LISTER replied: The only fresh liquid milk imported into the United Kingdom is from the Irish Free State, and mainly over the land boundary into Northern Ireland. During the first eight months of this year 30,481 cwts. of fresh milk was so imported. In addition, a small quantity, 2396 cwts., of unsweetened preserved milk (other than condensed and powdered milk) was imported into the United Kingdom.

Woman's Death from Asbestosis.

Mr. MUGGERIDGE asked the Home Secretary whether his attention had been called to an inquest at Ilford last week on a young woman who had been employed eight years before at an asbestos factory at Barking, the verdict being death due to asbestosis accelerated by tuberculosis; and whether he would amend the scheme for asbestos factories made under the Silicosis (Asbestosis) Act, 1930, which provided a period shorter than eight years between the employment and the certification of asbestosis, since it was now proved that once the lungs were affected the disease was incurable and, in the majority of cases, fatal.—Mr. STANLEY (Under-Secretary for Home Affairs) replied: The attention of my right hon. friend has been called to this case. The scheme for the asbestos industry does not apply to persons who had ceased to be employed in the industry at the time it was made, and no compensation would therefore have been payable in this case, quite apart from the time limit provision to which the hon. Member refers in his question. As regards the question of the time limit, it has not been found practicable in any of the schemes that are in force under the Act to dispense with some provision of the kind, but the department will discuss the point further with the industry, and consider whether some modification can be introduced into the scheme.

Unhealthy Basement Dwellings in London.

Mr. DAY asked the Minister of Health what investigations had been made into the number and description of occupants of basement dwellings in different parts of London; and if he would make a statement of any such investigations and the conclusions and recommendations arrived at.—Mr. E. D. SIMON replied: The report of the county medical officer of the London County Council for the year 1929 and the report of the school medical officer of the council for the year 1930 contain accounts of the investigations which have been carried out. The question of what further steps, if any, can usefully be taken to deal with unhealthy basements is, I understand, engaging the active consideration of the London County Council and the standing joint committee of the metropolitan borough councils.

MEDICAL NEWS

University of London.

King's College.—Four lectures on Blood Plasma and Platelets will be given by Mr. J. W. Pickering, D.Sc., on Tuesdays from Oct. 6th to 27th, at 5 P.M. At the same hour on Thursdays, from Oct. 15th to Nov. 5th, Mr. J. A. Hewitt, D.Sc., will speak on the Metabolism of the Carbohydrates and Fats.

University College.—Six lectures on the Physiology of the Sense Organs are to be given by Dr. R. J. Lythgoe on Mondays, from Oct. 12th to Nov. 16th, at 5 P.M., and four on the Respiratory Functions of the Blood, by Mr. L. E. Bayliss, Ph.D., at the same hour on Fridays, from Oct. 16th to Nov. 6th. Mr. Joseph Needham, Ph.D., will deliver four lectures entitled Speculation, Observation, and Experiment as illustrated by the History of Embryology, on Wednesdays, from Oct. 14th to Nov. 4th, at 5.30 P.M.

London Hospital Medical College.—The Schorstein lecture will be given in the Bearstead clinical theatre at 4.15 P.M. on Thursday, Oct. 15th, by Prof. Arthur J. Hall, whose subject will be Chronic Epidemic Encephalitis.

University College Hospital Medical School.—On Tuesdays Oct. 13th and 20th, Prof. J. C. G. Ledingham, F.R.S., will speak on Resistance to Infection, Natural and Induced: on Oct. 27th and Nov. 3rd, Prof. C. R. Harington, F.R.S., on the Chemistry and Functions of the Thyroid Gland; on Nov. 10th and 17th, Miss Harriette Chick, D.Sc., on Vitamins and Disease; and on Nov. 24th and Dec. 1st and 8th, Dr. R. T. Grant on the Pathology of Endocarditis. All these lectures will be at 5.15 P.M. on Tuesdays in the Medical School.

London School of Hygiene.—The second course of Heath Clark lectures will be held at the School on Oct. 13th, 15th, 16th, 20th, and 22nd, at 5 P.M., by Sir George Newman. Its title is the Rise of Preventive Medicine.

London School of Economics.—Three lectures on the Production, Distribution, and Value of Milk will be given at the School by Prof. R. Stenhouse Williams, M.D., at 5 P.M., on Wednesdays, Oct. 14th, 21st, and 28th.

University of Leeds.

At recent examinations the following candidates were successful:—

M.D.

J. Phillips.

FINAL EXAMINATION FOR M.B., CH.B.

Part I.—J. H. Hudson, J. H. Lawrence, and R. Raines.

Part II.—N. W. Roberts, M. G. Ross, C. K. Shain, R. E. Tunbridge, and Lilian I. Walker.

Part III.—R. E. Tunbridge (second class honours), L. Glick, J. M. Holmes, G. Hyman, H. Mattison, N. W. Roberts, M. G. Ross, B. Schroeder, and Lilian I. Walker.

FINAL EXAMINATION FOR B.CH.D.

A Pearlson.

FINAL EXAMINATION FOR L.D.S.

J. E. Benfield, and A. H. Green.

D.P.H.

Catherine M. Gray.

The William Hey Medal and The West Riding Panel Practitioners' Prize have been awarded to P. R. Allison.

Gresham Lectures.

Four lectures on Great English Doctors and their Message will be given by Sir George Newman, at Gresham College, Basinghall-street, London, E.C., at 6 P.M., on Oct. 6th and the three following days.

Royal Institute of Public Health.

The Harben lectures will be delivered in the lecture theatre of the Institute, 37, Russell-square, London, W.C., at 4 P.M. on Oct. 5th, 6th, and 7th, by Dame Louise McIlroy, professor of obstetrics and gynæcology in the University of London. Her subject is Recent Researches in the Prevention of Maternal, Fœtal, and Neonatal Mortality, the three lectures being devoted respectively to the antenatal, intranatal, and postnatal periods. No ticket of admission is required.

A course of lectures on the Health of the Citizen will be given at the same address, at 4 P.M., on Wednesdays, from Oct. 14th to Dec. 16th. The first lecturer will be Sir Ernest Graham-Little, M.P., on the Health of the London Citizen. Subsequent speakers will be Sir Leonard Hill, F.R.S., Prof. F. J. Browne, Dr. L. E. Claremont, Prof. Winifred Cullis, Dr. D. Chalmers Watson, Dr. David Lees, Prof. H. R. Kenwood, Prof. E. L. Collis, and Sir Pendrill Varrier-Jones.

The annual congress of the Institute will be held at Belfast during Whitsuntide of next year, under the presidency of Lord Londonderry.

NOTES, COMMENTS, AND ABSTRACTS

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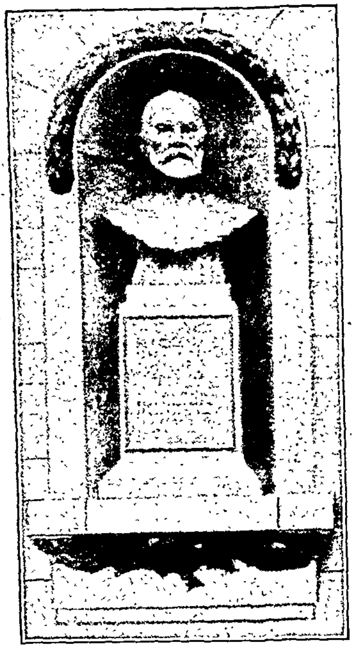

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ADDRESSES AND ORIGINAL ARTICLES

INNERVATION OF BLOOD-VESSELS OF THE LIMBS.*

BY JOHN S. B. STOPFORD, M.B.E., M.D.MANCH., F.R.S.,

PROFESSOR OF ANATOMY IN THE UNIVERSITY OF MANCHESTER.

IT has become well known since the publication of the researches of Kramer and Todd,[1] and Potts[2] that the blood-vessels of the limbs receive their innervation from two sources. First, a proximal supply, which comes from the lower part of the cervical portion of the sympathetic ganglionated cord, and accompanies the subclavian artery in the tue ..f the arm; and an extension of the aortic by re-..tic plexus along the common iliac, external conclusively that ..rteries in the leg. Secondly, a blood to the muscles causes g of fine filaments which spaces of some factor whipheral nerves, and reach pain. By improving the cirth sets of fibres take part follows division of vasoconstiarterial plexuses, which vessels are sufficiently perviclls. It is only recently for the pain is removed fronformation regarding the

In view of the criticisnof the fibres from these at the interpretation of he types of fibres which which have been submitt these two ways. Both that a sympathetic senso and pathological import- exists, it is difficul..ficant bearing upon operations Kinnier..ve been devised during the last few years on different parts of the sympathetic nervous system.

The investigations prosecuted by Woollard[3] and Blair, Duff, and Bingham,[4] have supplemented particularly our knowledge. The latter, by the study of the perivascular plexuses in an amputated leg, upon which the operation of perivascular sympathectomy had been performed about one month previously, have suggested that the overlap of fibres from the two sources is considerable upon the main arteries. Although all the nerves accompanying the femoral artery in Hunter's canal had been destroyed by the operation of sympathectomy, many fibres arrived distally from neighbouring peripheral nerves, and it was noted that these were chiefly finely medullated filaments with a few large medullated fibres and an appreciable number of non-medullated ones. Amongst these normal fibres, as low as the distal part of the posterior tibial artery, were found degenerate fibres, presumed to be chiefly from the aortic plexus, which had been divided by the operation of perivascular sympathectomy. Woollard, by studying the effects of excision of the lumbar sympathetic cord in one series of cats, and of periarterial sympathectomy in another series, found that in these animals the overlap between fibres from the two sources of supply was less extensive, and that the transition occurred in the region of the bifurcation of the common femoral artery. He was also of the opinion that the proximal supply was practically entirely composed of non-medullated fibres, whilst the filaments from peripheral nerves were chiefly medullated. From the more extensive observations of Woollard it appears likely that some of the degenerate fibres seen by Blair and his co-workers represent filaments which had reached the femoral artery from peripheral nerves above the level of the operation, and that the apparent extent of the proximal source of supply was too extensive and the overlap too great. This interpretation is supported by the statement, which conflicts with the conclusions of Woollard, that the fibres accompanying the upper part of the femoral artery "were certainly not wholly or in a great part non-medullated." Woollard reports a number of other important observations which may be summarised as follows:—

1. No nerve-cells were found in the perivascular plexuses, which is in accord with most recent observations. The "degeneration experiments disclosed a complete disappearance of the intramuscular nerve net right up to the capillary bed." These observations absolutely deny the existence of any local neural mechanism, which is maintained by peripherally placed ganglion cells.

2. On tracing the medullated fibres along the vessels he discovered branches which ended in the neighbouring fat and connective tissue, and sent collaterals to the adventitia of the blood-vessels. It is important to bear in mind that these fibres had their cell station in the posterior root ganglia, and that they demonstrate a neural mechanism for the axon reflexes described by Lewis, and are probably capable of conducting antidromic impulses.

3. Like a number of other workers, Woollard found that many, but not all, the capillaries were accompanied by fine non-medullated sympathetic fibres. He was unable to demonstrate that any of these fibres were related to the Rouget cells, and he did not see any fibres terminating in the capillary wall.

4. From a careful study of the fine intramuscular plexus (or net) in the tunica media of arteries and veins, he failed to find any terminals in the muscle-fibres: the fine non-medullated filaments invariably ended in a pericellular position.

Two Sets of Fibres.

Although some points require confirmation and amplification, it is clear that structurally we have two distinct sets of fibres in relation with blood-vessels of the limbs.

The *non-medullated fibres*, which are sympathetic in origin and vasostrictor in function. They reach the vessels by both sources of supply, and can be traced to arteries, veins, and capillaries. In the case of the arteries and veins they appear to end around the muscle-cells of the media, but their relation to the capillary wall is not absolutely clearly defined. It is not within the scope of this paper to describe the prespinal paths connected with the vasoconstrictor fibres, nor the higher vasomotor centres, but it is necessary to mention that, in addition to the well-known lower centres, knowledge is accumulating which indicates the presence of a principal vasomotor centre in the region of the tuber cinereum.

The *medullated fibres*, which reach the blood-vessels only through the peripheral nerves, have their cell station in the posterior root ganglia, and are chiefly distributed to vessels in the more distal parts of the limbs. It seems clear that many of these are concerned with vasodilatation, and are of interest in connexion with antidromic impulses and axon reflexes. Lewis and Marvin[5] have shown that the antidromic impulses travelling down such fibres release a vasodilator substance from the tissues. They are also of opinion that the cutaneous manifestations of herpes zoster are due to antidromic impulses which release a histamine-like substance in the skin. Lewis, Harris, and Grant[6] have proved that the "flare" in the triple reaction succeeding the injection of histamine or injury to the skin is dependent upon the integrity of the cutaneous nerves of the region, and is caused by a local axon reflex. There is ample proof that this axon reflex is transmitted by medullated and not sympathetic fibres, and there seems to be little doubt that the medullated fibres with collaterals to blood-vessels, described by Woollard,

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* Abstract of a presidential address to the Manchester Medical Society on Oct. 7th.

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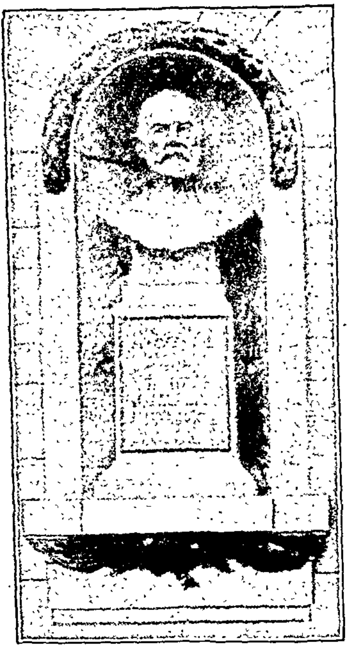

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experimental results which strongly support the view that there is no sensory sympathetic course from blood-vessels.

Fourthly, and perhaps the most tempting observation is the immediate relief of pain after excision of the sympathetic in such conditions as thrombo-angeiitis obliterans. It would at first appear that the relief was the direct result of section of pain paths which must run in the sympathetic, since the operation is confined to this division of the nervous system. No such paths are known to exist anatomically, and further reflection shows that the vasodilatation consequent upon the sympathectomy is more likely to be the explanation of the relief of pain, by permitting irritant substances which had accumulated in the tissues to be flushed out. The experiments described by Lewis, in which observations were taken regarding the production of pain by exercise after the application of a ligature to a limb, and its relief by re-establishment of the circulation, seem to prove conclusively that severe reduction of the supply of blood to the muscles causes a collection in the tissue spaces of some factor which is responsible for the pain. By improving the circulation, which inevitably follows division of vasoconstrictor fibres, provided the vessels are sufficiently pervious, the factor responsible for the pain is removed from the tissue spaces.

In view of the criticism which may be levelled at the interpretation of the clinical observations which have been submitted in favour of the belief that a sympathetic sensory path from blood-vessels exists, it is difficult to agree with the statement of Kinnier Wilson [21] that here we have another example in which "clinical research has preceded that of anatomy and physiology."

Although there does not appear to be any anatomical or sound clinical evidence for the existence of a *sympathetic* sensory path from blood-vessels, there are grounds for believing that certain arteries may be sensitive, but that the path must be through the spinal nerves. Several observers have suggested that the injection of certain substances into arteries in animals induces pain, but the experiments do not always confidently justify this conclusion. Recently Burget and Livingston [22] have injected a 5 per cent. solution of lactic acid into the brachial artery in dogs, and claim that this gave rise to afferent impulses which appeared to be painful. They found that excision of the stellate and second thoracic sympathetic ganglia did not alter the response, and conclude that the impulses enter the central nervous system largely by the seventh and eighth cervical and first dorsal posterior spinal roots. Provided we disregard the difficulties of judging whether an animal feels pain as a direct result of a specific stimulus, these experiments would undoubtedly indicate that the brachial artery in the dog is sensitive, and that the conduction of the impulses from the vessel is through certain spinal nerves. Other observers have denied the causation of pain by the injection of foreign substances unless the perivascular tissues are damaged, which Burget and Livingston claim to have avoided. Consequently at the present time it must be concluded that the experimental observations are conflicting, and from the obvious difficulty of interpreting the results in animals this method of approach to the problem is liable to be unconvincing.

In a personal communication Prof. David Waterston informs me that the insertion of a needle into the brachial artery in the human subject induces intense pain. He is of opinion that the intima is sensitive, and that the pain is not due to contraction of the artery. I have not repeated these human experiments in the case of arteries, but have discovered no sensory response succeeding the insertion of a needle into superficial veins or upon stimulation of the venous endothelium. These experiments of Prof. Waterston are to be published later, and I wish to thank him for his generous action in allowing me to refer to them in advance. The observations he has made appear to constitute the strongest evidence so far advanced that arteries are sensitive. There is little doubt that, if his conclusions are confirmed, the path from the sensitive vessels must run through the cerebro-spinal and not the sympathetic system.

Arterial Occlusion associated with Neurological Changes.

This subject has interested a very large number of investigators, and there is an extensive literature dealing with the interrelation of vascular and nervous changes. Many have believed that thickening of the arterial wall succeeds paralysis of the vasomotor fibres, and yet, after following over many years a number of cases suffering from irreparable division of one or more peripheral nerves, frequent examinations of the patients failed to reveal any tendency to arterial occlusion in consequence of paralysis of vasoconstrictor fibres. From prolonged observations and recent experiences in association with my colleague, Prof. E. D. Telford, I am convinced that long-continued *irritation* of the vasoconstrictor fibres is the primary cause of the changes in the arterial wall. In 1918 [23] I recorded clinical and histological evidence to show that "irritative nerve lesions can produce changes in the walls of the arteries supplied by the affected nerves," and since that time have had opportunities of confirming the conclusion that irritative lesions of peripheral nerves can induce obliterative changes in arteries. Two features appear to be necessary for the occurrence of the vascular complications: first, the irritation must involve the vasoconstrictor fibres in the nerve, and, secondly, the irritation must be of considerable duration. Recently, Telford and I have demonstrated [24] that the vascular complications of cervical rib are due to irritation of the vasoconstrictor fibres in the lowest trunk of the brachial plexus, and we have submitted a suggestion as to how prolonged vasoconstriction can induce arterial occlusion. Still more recently we have recorded [25] a case of arterial thrombosis associated with irritation of the lumbar sympathetic cord, caused by histological changes which are typical of neurofibromatosis. We have had a very similar case since the publication of that paper. Thus we have evidence of obliterative arterial changes following prolonged irritation of vasoconstrictor fibres in peripheral nerves, the lowest trunk of the brachial plexus and the lumbar sympathetic cord, and it seems impossible to escape the conclusion that the arterial changes are caused by the irritation.

From a study of excised arteries in a number of these cases it is possible to follow the progress of the arterial changes. Briefly the sequence of events appears to be:—

1. Prolonged spasm in consequence of irritation of the vasoconstrictor fibres.
2. Thickening of the intima, generally in patches, and often associated with fibrillation and breaking-up of the internal elastic lamina.
3. About the same time, degeneration of the muscle of the tunica media is manifest, and is succeeded by fibrosis of this coat of the arterial wall.
4. Disintegration in places of the endothelial lining.
5. Thrombosis.
6. Slow organisation of the thrombus, often leaving minute channels.

Telford and I have put forward the suggestion that the angiospasm, caused by the irritation of vasoconstrictor fibres, must inevitably induce constriction or even obliteration of the vaso-vasorum. We believe that prolonged narrowing or occlusion of the vaso-vasorum is likely to cause nutritional changes in walls of the arteries, and to lead ultimately to thrombosis. Whether this is the correct explanation of the process or not, the fact remains that sustained irritation of vasoconstrictor fibres is liable to cause profound changes in the arterial wall, and two practical points emerge from this conclusion. First, irritation of vasoconstrictor fibres should be relieved at an early date to prevent the supervention of arterial complications and their sequelæ; and, secondly, every opportunity should be taken of searching histologically for evidence of pathological processes affecting vasomotor fibres in all cases of obscure vascular disease. Sympathectomy is now being widely practised to relieve a number of diseases in which angiospasm is a prominent symptom, and, in the light of our own investigations, Telford and I have urged that a very complete histological examination should be made of all excised material. We venture to think that such investigations are likely to shed considerable light upon the ætiology of several pathological conditions of blood-vessels which require explanation.

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BOGNOR REGIS HOSPITAL.—On Sept. 25th, Lord Leconfield, Lord-Lieutenant of Sussex, laid two foundation-stones of a new hospital on the Chichester road. The original hospital was really a cottage war memorial hospital, but it had long been felt that the institution was an inadequate memorial, and the governors decided to erect a new hospital, partly to commemorate the restoration to health of the King, who spent some months at Bognor during his illness in the winter of 1928–29. One of the new wards will be a memorial to the late Dr. S. A. Lane.

A NOVEL HOSPITAL SATURDAY SCHEME.—Some eight or nine months ago Messrs. J. Lyons and Co. initiated on behalf of the Birmingham Hospital Saturday Fund a scheme by which packets of their teas sold within a period of six months in the Birmingham district contained vouchers representing 1*d.* in the pound weight. These vouchers, if returned by the purchasers to the firm, represented in the aggregate the contribution which Messrs. Lyons and Co. undertook to pay over to the Fund. The scheme has been so successful that the firm last week paid over a cheque for £5000. The money is to be applied towards the building of the Fund's new convalescent home at Weston-super-Mare.

BLUE SCLEROTICS AND ASSOCIATED DEFECTS.

A STUDY OF FOUR FAMILIES WITH NOTES ON THEIR MINERAL METABOLISM.

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AND

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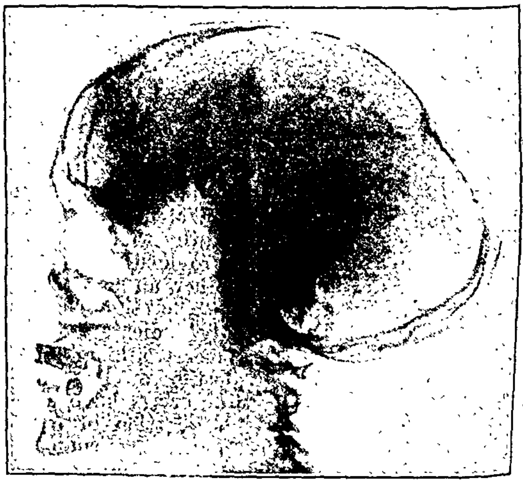
THE purpose of this communication is to put on record a series of observations on the incidence of blue sclerotics and certain associated abnormalities in four families which have recently come under our notice. The metabolism of calcium, magnesium, phosphorus, and fat have also been studied in certain members of these families.

It is not our intention to review in full the previous non-chemical work on these associated defects. This immense field has already been covered by Bell.[1] The earliest record of a marked case of hereditary idiopathic generalised bone fragility appeared in 1788 in a dissertation published in Upsala by Ekmann.[2] This case was traced through three or probably four generations. As regards blue sclerotics, Bell has been unable to find any reference earlier than the casual statements of Henzschel[3] in 1831. In 1848 the two conditions were associated for the first time as a clinical entity by Lobstein[4] and by Cornaz.[5] Bell in the course of her investigation attempted to find if there was any definite association between any two or more of the following conditions—bone fragility, blue sclerotics, liability to dislocations and sprains, and otosclerosis. Her statistical survey showed that pedigrees of bone fragility cannot be assumed to contain material homogeneous with that obtained from pedigrees showing a liability to fracture associated with blue sclerotics. The sex-incidence in these two groups was markedly different. The

FIG. 1.

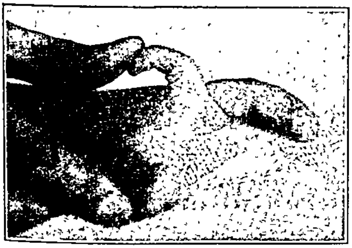


CASE 3, 17, Family 3.—Radiogram of skull showing curious shape of occipital region and well-marked osteoporosis.

male sex incidence of bone fragility alone was found to be high while that of blue sclerotics associated with the liability to fracture was relatively low. Bell also found that in pedigrees illustrating the associated defects of blue sclerotics, liability to fracture, and otosclerosis, the presence of the blue sclerotic appeared to determine the addition of any one or more of these other defects which latter never appeared to occur in hereditary form in these pedigrees without the associated blue sclerotic. The female appeared the more potent transmitter. Among adults with blue sclerotics approximately 60 per cent. had associated otosclerosis, and 44 per cent. suffered from all three defects. The question of the association of dislocations and sprains with blue sclerotics she does not answer, most probably from a lack of sufficient material.

Despite the large volume of clinical data which has grown round the subject, the cause of this disease or inborn defect has not been determined. Most observers are agreed that the peculiar blueness of the sclerotics is due to an increased translucency of this membrane, and not to an actual increase in colour or decrease in thickness. Shugrue, Rockwood, and nderson [6] consider "the most plausible explanation auer) [7] for the cases of blue sclerotics with brittle ones and deafness is that they are caused by a connital mesenchymal defect, since all the structures volved in the syndrome come originally from this nlage." They add that this does not explain why ther structures of mesenchymal origin, such as the eart and blood-vessels, are not usually affected. hey cite, however, a case of blue sclerotics, deafess, and atrophy of bones plus cardiovascular legeneration. These same writers believe the defect o be of European descent. The tendency to fracture nay be delayed, and does not necessarily occur in hildhood, as in the case reported by Ormerod.[8] This individual had fractures at birth which were ttributed to an assault upon his mother during her pregnancy. No further fractures occurred until he reached the age of about 40 years.

FIG. 2.



ASE 4, 13, Family A.—Photograph showing excessive laxity of finger-joints.

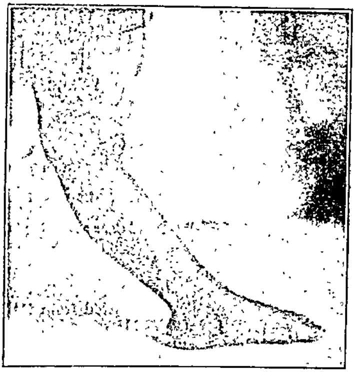
A further point of interest lies in the fact that the fractured bones generally heal rapidly—a rather curious phenomenon, since there seems to be a developmental defect in ossification. Although tending to be progressive, the condition does not necessarily shorten the natural span of life.*

Four Families.

The following are short notes on the histories of the four families.

FAMILY A.—This is perhaps the most interesting of the four families, since three generations are still alive, all of them showing in a very striking manner the hereditary lack of some constituent of the body essential to complete bone and joint formation.

FIG. 3.



CASE 4, 13. Family A.—Photograph showing excessive laxity of knee-joint.

The grandfather (II., 4) is now aged 67, and gives a history of an extraordinary number of fractures of different bones. He has well-marked blue sclerotics. Unfortunately, he has now become somewhat chary of meeting doctors, and we were unable to induce him to have X ray photographs taken. His son (III., 17), now aged 31, shows very well-marked blue sclerotics, but gives no history of fracture. There is in his case, however, an extraordinary looseness of the joints, so much so that several dislocations have occurred. Thus the heads of both radii are permanently dislocated and the ankles are so deformed as almost to amount to a permanent dislocation in the position of extreme pes planus. Radiograms show no evidence of fracture, but the skull is of that peculiar shape which is now recognised as typical of the condition—i.e., it has a curious projection of the occipital region and a marked degree of osteoporosis (Fig. 1). The chief interest in this member of the family lies in the fact that there appears to be an association of excessive laxity of joint ligaments with blue sclerotics but without any evidence of actual bone fragility, no fractures having occurred during the 31 years of life.

The youngest member of this family (IV., 13), a boy aged 4, was referred to one of us (G. H. S.) for advice regarding an extreme degree of flat-foot. The blue sclerotics were observed, and the family history was elicited. Excessive laxity of joints again appeared to be the striking feature of the case, but after the first examination the boy began to have fractures, and has since had three or four. The hyperlaxity of this boy's joints is well seen in Figs. 2 and 3.

The pedigree chart illustrated, embracing 51 individuals, shows that no less than 13 members of the family were affected in four generations, nine of them being males and four females.

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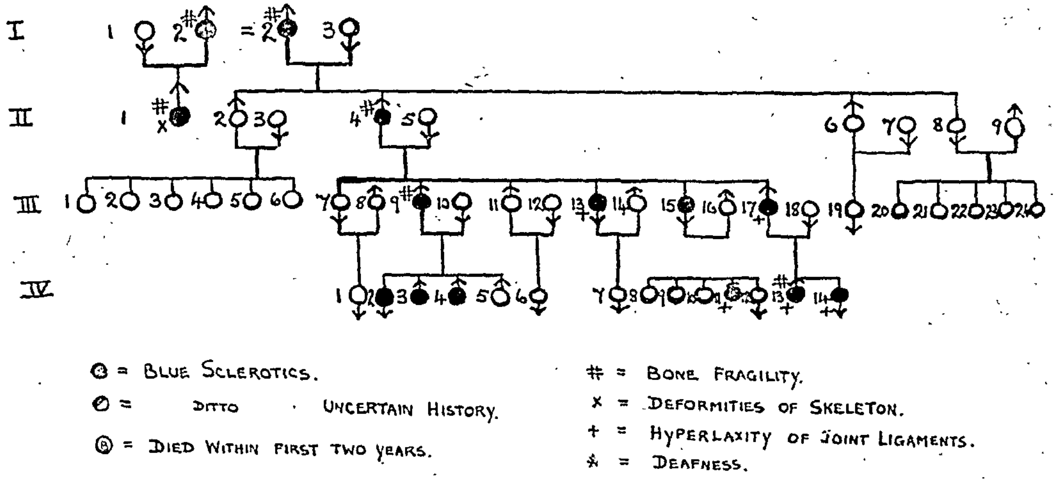
* Darwin, in his "On the Origin of Species," instances as a whimsical correlation of growth the fact that cats with blue eyes are invariably deaf.

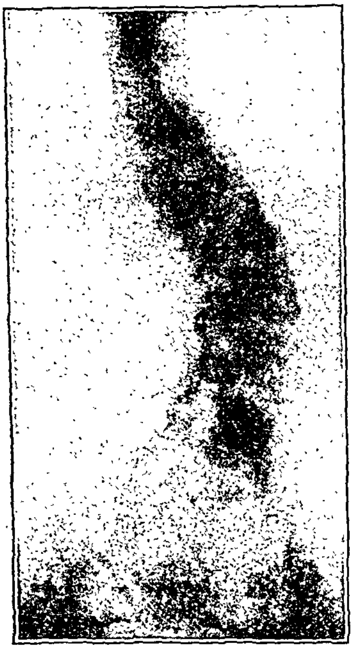
FAMILY A.*


I
II
III
IV
⊙ = Blue Sclerotics.
⊘ = Ditto · Uncertain History.
Ⓑ = Died Within First Two Years.
# = Bone Fragility.
× = Deformities of Skeleton.
+ = Hyperlaxity of Joint Ligaments.
Deafness.

* The explanation of signs appearing in this family tree applies to all the pedigrees illustrated.

FAMILY B.—In the next family observed two generations were involved, and in their case the condition appeared to be transmitted from father to daughter. The father (III., 1) was admitted to a Glasgow hospital on the supposition that he was suffering from tuberculosis of the spine. In his case, again, hypotonicity of ligaments was the most striking feature, together with the marked blueness of the sclerotics. No history of fracture could be obtained, and the man's chief complaints were a decrease in height due to a progressive scoliosis together with severe sciatic pains in the legs due, no doubt, to pressure on the nerves. A photograph of the spine (Fig. 4) shows no apparent difference from that of an ordinary scoliosis. The daughter (IV., 4), like her father, had blue sclerotics, but in addition there was a history of repeated fracture. So far no hyperlaxity of the joints has dedeveloped. It is interesting to note that the tendency to deformity did not develop in the father until somewhat late in life, and was alleged to have been brought on by service in the army.

FIG. 4.



CASE 3, 1, Family D.—Radiogram showing scoliosis.

It will be seen from the pedigree chart that there is an indefinite history of blue sclerotics having occurred in the great-grandfather (I., 1) of the child.

FAMILY C.—The main interest in this family lie in the fact that we appear to be dealing with a *original* case. It will be seen from the pedigree char *that,* although a very full family history comprisin 55 persons was available, this case (IV., 21) was th first to exhibit bone fragility, hypotonicity of lig ments, and blue sclerotics. This boy, aged 4 year has already been treated for fractures.

That such isolated instances of the disease are n very rare has been shown by Usher (unpublishe communication to Bell), who describes one isolate case of blue sclerotics (one fracture) in an extensi pedigree of five generations. Bolten [9] also h described a pedigree with *one case of blue scleroti* and bone fragility in a pedigree containing 11 ca of cretinism. More recently Hunter [10] has put record another original outcrop of this defect. T youth, aged 17 years, had blue sclerotics and history of more than 30 fractures. There was history of deafness.

FAMILY D.—Chief interest in this pedigree cen round the frequent association of deafness, h tonicity, and bluish sclerotics, but with only exhibition of bone fragility. Case 4 (III., 12) was source of the family history, and was the only subj observed.

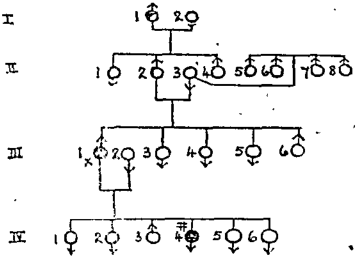
This man, now aged 46, had been the victim of five ac dents involving, in all, eight separate fractures. As result of his last accident the left humerus, right tibia, a fibula were fractured—the tibia in several places. Ele weeks after the accident, *although the humerus which* w impacted at the surgical neck appeared to be healing, th was still no union of the leg bones and no *X ray* evide of callus formation. An experimental metabolic per was then held, and following it irradiated ergost (Radiostol, B. D. H., Ltd.) was administered. The ne X ray plate was taken five weeks after the previous o and three weeks after the institution of vitamin therapy. Definite callus formation was evident. Af a prolonged convalescence, the patient was eventu able to resume his occupation, that of a photograph but he still (16 months after) requires the aid of tw sticks.

While the *number of affected* members *in* the families is too small on which to base any defini statistical statement regarding the sex inc yet it is interesting to note that the male inciden is the greater—a finding contrary to that of Bell In addition, the female does not appear to be a m potent transmitter than the male.

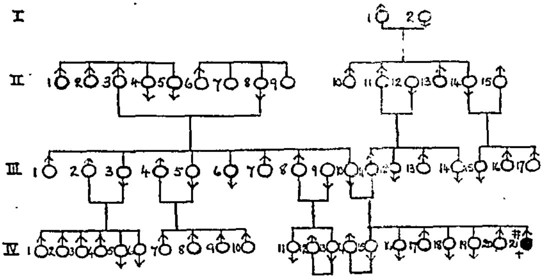
Metabolism.

Barker[11] in 1857 observed that the bones of a certain newly born infant had a very low ash content. Some years later Hildebrandt[12] while examining the body of a newly born child noted that the bones yielded easily to the cutting edge of a knife, and he concluded that the bones contained little ash. Several other cases suggestive of osteogenesis imperfecta have appeared in earlier literature but it is doubtful if they are all typical examples of this disease or inborn defect. More recently Sindler[13] has found that the bones in osteogenesis imperfecta contain about three times as much magnesium and about fourteen times as much sodium as the corresponding bones of a normal child.

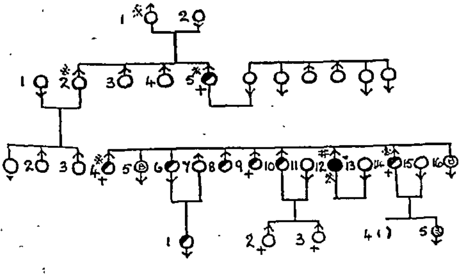
FAMILY B.



FAMILY C.



FAMILY D.



The first serious metabolic study of this disease was made by Bamberg and Huldschinsky[14] in an investigation of a 3 months' old child. These authors found that the retention of lime could vary considerably, without any therapeutic agent, from −0·019 to +0·111 g. CaO per day, during different metabolic periods. With cod-liver il the daily etention was +0·114 g., and vith phosphorus lus cod-liver il retentions f +0·118 g. nd +0·136 g. ere noted. he therapeutic vidence was herefore rather nconclusive. chwarz and ass[15] in the ame year ound in a ild suffering from this defect that the nitrogen d phosphorus metabolisms were approximately rmal, so also was the fat retention and absorp-n. The calcium retention was only slightly ow normal. Working on similar lines Schabad[16] restigated the mineral metabolism of a young male child who had had 12 fractures. The laily retention of CaO without treatment was +0·017 g. per kg. and that of P_2O_5 −0·0039 g. per kg. e obtained his best metabolic results with phosphorus lus cod-liver oil. Retentions of +0·033 g. CaO and +0·033 g. P_2O_5 per kg. per day were found. In two children, Bookman[17] found that during the active stage, phosphorus retention was higher than that of two normal children studied by Cronheim and Müller.[18] He also noted that the retention of magnesium was low during the active stage of the disease. More recently Tauber[19] has found a negative calcium balance in two infants belonging to the same family who suffered from this condition. Hunter[10] investigated a case of osteogenesis imperfecta in a boy aged 17 years. The blood calcium and phosphorus were found to be normal. This confirmed the previous observations of Flagstad, Zanger and Levén,[20] and also Shugrue, Rockwood and Anderson[5], as to the normality of the calcium and phosphorus content of the blood in this condition. Hunter[10] found that there was no apparent divergence of the metabolic exchange of calcium from the normal. He admitted, however, that his metabolic experiments might be fallacious owing to the extremely low intake of calcium.

It is obvious, from the foregoing résumé, that the findings of these different workers on the mineral balance are very varied. It was hoped that an examination of certain members of the families previously recorded might yield more definite information. The present series of metabolic investigations are based on the determination of the mineral balance rather than on isolated determinations of the calcium and phosphorus of the blood.

GENERAL DESCRIPTION OF METABOLIC EXPERIMENTS.

The patients were housed in a small experimental ward and attended by nurses trained in the conduct of metabolic experiments. The urine was collected in 24-hourly specimens, made up to a constant volume, and preserved with thymol in chloroform. The various periods during which the fæces were collected were marked off with carmine taken in the form of capsules. The fæces were dried before being analysed, with the exception of certain of the fat determinations, which were made on the fresh moist stool. A pre-period of four to five days was usually allowed in order to obtain equilibrium. Case 1 remained in bed during the experimental period—his ankles being encased in plaster. Cases 2 and 3 remained active throughout the period. The fourth subject lay in bed throughout the periods of experimentation with his leg fixed in extension.

ANALYTICAL METHODS.

Urine.

Calcium and magnesium: Shohl and Pedley.[21] Phosphorus: Neumann's wet ash method with subsequent precipitation, as phosphomolybdate.

Fæces and Food.

Calcium and magnesium: Material ashed, any iron removed, then calcium and, finally, magnesium precipitated as in the urinary analyses.

Phosphorus: Material ashed in presence of $Ca(OH)_2$, and then phosphorus precipitated as phosphomolybdate.

Fat: Saxon's[22] method.

ANALYTICAL DATA.

CASE 1 (IV., 13, Family A), 3 10/12 years; weight, 17·5 kg. Period of collection, six days.

Daily intake of food.—Milk, 630 c.cm.; brown bread, 60 g.; digestive biscuits, 45 g.; fresh butter, 35 g.; tea, 300 c.cm. (one level teaspoonful); dried egg, 9 g. (served as a custard); dried tomato soup, 10 g. (served as soup); dried apples, 10 g. (served as stew); and sugar, 5 g.

On three different occasions the fæces were analysed for fat.

—	Daily intake.	Daily output.			Daily retention.	Daily retention (per kg.)	Retention %.
		Urine.	Fæces.	Total.			
CaO	1·981	0·135	1·557	1·692	0·289	0·016	14·5
P_2O_5	2·877	1·338	1·294	2·632	0·245	0·014	7·1

CASE 2 (III., 17, Family A), 31 years; weight, 60·5 kg. Period of collection of urine and fæces, six days.

Daily intake of food.—Milk, 30 g. (dried milk); brown bread, 170 g.; butter, 84 g.; dried egg, 18 g.; dried tomato soup, 15 g.; steak, 100 g.; dried apples, 15 g.; digestive biscuits, 1; marmalade, 1 desertspoonful; tea, 760 c.cm. (three level teaspoonfuls); and sugar, 20 g.

—	Daily intake.	Daily output.			Daily retention.	Daily retention (per kg.)	Retention %.
		Urine.	Fæces.	Total.			
CaO	0·835	0·315	0·483	0·798	+0·037	+0·0006	4·4
P_2O_5	2·91	2·00	0·880	2·88	+0·03	+0·0005	1·0

CASE 3 (IV., 21, Family C), 4 years; weight 16 kg. Period of collection, eight days.

Daily intake of food.—Milk, 600 c.cm.; digestive biscuits, 35 g.; brown bread, 40 g.; fresh butter, 45 g.; oatmeal, 20 g. (served as porridge); dried kidney soup, 15 g. (served as soup).

Aliquot fraction of day's intake taken for analysis. A fat analysis of the fæces was performed about six months later.

—	Aver. daily intake.	Daily output.			Daily retention.	Daily retention (per kg.)	Retention %.
		Urine.	Fæces.	Total.			
CaO	1·798	0·071	1·431	1·502	0·296	0·0185	16·4
P_2O_5	2·788	0·854	1·299	2·153	0·635	0·039	22·7
MgO	0·294	0·059	0·234	0·293	0·001	—	—

Blood-serum Ca = 10·36 mg. per 100 c.cm. serum.
Blood-plasma P = 3·38 mg. per 100 c.cm. plasma.

CASE 4 (III., 12, Family D), 46 years; weight, 60 kg. Periods of collection, seven and five days respectively.

Daily intake of food.	*Period 1.*	*Period 2.*
Milk	630 c.cm.	630 c.cm.
Tea	200 c.cm.	300 c.cm.
Brown bread	75 g.	100 g.
Fresh butter	55 g.	65 g.
Dried lentil soup (served as soup)	15 g.	15 g.
Dried apples (served stewed)	15 g.	15 g.
Eggs	6 g.	15 g.
Digestive biscuits	90 g.	90 g.

Aliquot fraction taken for analysis.

Period.	—	Daily intake.	Daily output.			Daily retention.	Daily retention (per kg.)
			Urine.	Fæces.	Total.		
1	T.N.	8·23	7·05	0·53	7·58	+0·65	+0·0108
	CaO	2·05	0·51	1·26	1·77	+0·28	+0·0047
	P_2O_5	2·97	1·95	0·78	2·73	+0·24	+0·0040
2	CaO	2·07	0·49	1·12	1·61	+0·46	+0·0077
	P_2O_5	3·05	1·76	0·87	2·63	+0·42	+0·0070

T.N. = Total nitrogen.

Discussion.

When consideration is taken of the relatively vast amount of work which has been done on the metabolism of calcium and phosphorus in some of the diseases of infancy and childhood, it is rather surprising to find how little is known about the mineral requirements of the normal child at various age-periods. Even in normal children—that is, children with no apparent defect—we find extraordinary differences in the rate of growth From a study of normal infants ranging up to one year old, Telfer found that the daily retention of CaO per kilo ranged from +0·055 to +0·124 g. and that of P_2O_5 from +0·055 to +0·123 g.—i.e., the retentions were approximately equal. Cronheim and Müller[18] found slightly lower figures for these elements. Jundel, in a study of the mineral requirements of two normal children, K and N, aged respectively 5½ and 7¾ years found that the daily retentions of CaO per kg. body weight were +0·003 and +0·029 g.; of P_2O_5 +0·0 and +0·030 g.; and of MgO, +0·014 and +0·016 Dr. Ford and Dr. McRae, of the Royal Hospi for Sick Children, Glasgow, have furnished us w certain, as yet unpublished, data regarding mineral requirements of two normal children aged and 5 years respectively—ages more compara with the children of the present series. The ret tions per kg. per day were for CaO +0·042 g. and +0·039 g., and for P_2O_5 +0·035 g. and +0·026 g. respectively. These retention figures are distinctly lower than the requirements of younger children (vide Telfer).[23]

Turning to the present series, it is obvious that in the two children (Cases 1 and 3) we are dealing with a defective utilisation of calcium, phosphorus, and magnesium. The retentions of CaO per kg. per day in Cases 1 and 3 were respectively +0·016 g. and +0·185 g. The retentions of P_2O_5 were variable. that of Case 3 appeared to be only slightly lower than normal, +0·039 g. per kg. per day, while that of Case 1 was very much lower, +0·014 g. per kg. per day. The difference in the retention of phosphorus in the two cases may bear some relation to the clinical condition, for Case 1 was kept in bed throughout the metabolic period, his ankles being encased in plaster, while Case 3 moved freely about the ward. In a previous investigation one of us (Cuthbertson[25]) has shown that in adults within two to three days from the commencement of a period of muscular rest (fixation of a lower limb in a splint) there results a loss of sulphur, nitrogen, phosphorus, and, to a lesser extent, calcium. The catabolic loss of these elements usually occurs in that order of priority. The S.N. ratio suggested that the source of the material was some sulphur rich tissue—presumably muscle. The degree of immobilisation of Case 1 might be sufficient to account for a diminished anabolism, and since 20–30 per cent. of the total phosphorus content of the body is contained in tissues other than bone, the retention of phosphorus would be affected to a greater extent than that of calcium. Since bone is relatively richer in CaO than it is in P_2O_5 a defective ossification, provided it were not accompanied by a similar defective soft tissue development, would cause a greater lowering of the retention of CaO than it would of P_2O_5. Such an explanation would probably account for the seeming disproportionate retentions of CaO and P_2O_5 occurring in Case 3.

The retention of magnesium as determined in Case 3 appeared to be very low.

The natural question arises as to whether these low retentions of calcium, phosphorus, and magnesium are due to a faulty utilisation by the bone-forming elements or due to some primary defective absorption from the alimentary tract. The urinary excretion of lime being approximately 5–8 per cent. of the total output might suggest that probably more lime is being absorbed than can be utilised, and that the defect lies in the bone-forming elements. As in practically all questions of mineral metabolism, it is impossible to state definitely which factor is mainly responsible. But viewing these associated abnormalities as a whole it would appear more reasonable to believe that they are the result of some elemental defect, which may prove to be of mesenchymal origin, as has been suggested by Bauer.

The mineral metabolism of Case 2 (father of Case 1) showed no outstanding features, a result which was rather to be expected, as clinically the patient appeared to be in equilibrium. There was, however, a very slight retention of lime and phosphoric acid. The fractions of the total output of CaO and P_2O_5 excreted in the urine were comparable to the figures found by one of the present writers (Cuthbertson [26]) in a series of normal cases on similar diets.

The metabolic data of Case 4 have already been described elsewhere (Cuthbertson [26]). These analyses were made during the healing of several fractured bones—the result of a severe accident. Eleven weeks after the accident there was still no union of the leg bones and no X ray evidence of callus formation. At this point a metabolic period was held. Following the first experimental period irradiated ergosterol was administered (B.D.H., Ltd.—Radiostol). A few weeks later definite callus formation was visible. A second metabolic period was instituted one month after the first. There was a small but definite retention of both calcium and phosphorus during the first period, and this was increased considerably during the second, the CaO retention rising from 0·0047 to 0·0077 g. and the P_2O_5 from 0·0040 to 0·0070 g. per kg. per day. The recovery was very slow.

The capacity for bone healing in osteogenesis imperfecta is supposed to be unimpaired. Indeed the fractured bones unite very rapidly. It is possible that the imperfect delayed union in this case was due primarily to the nature of the fracture and not from any inborn defect. Vitamin D did appear to help the healing process, but too much stress cannot be laid on such an isolated case, for fractures are notoriously irregular in their healing. The administration of vitamin D to a few normal fracture cases did not result in any obvious specific improvement (Cuthbertson [26]).

The passage of a bulky grey stool one day by Case 1 suggested that an investigation of the fat distribution of the fæces might yield some information. The total fat content was generally low, but of this the neutral fat formed a rather larger proportion than is usually reckoned as normal. It is usual to find a relatively high neutral fat content when the bulk of fæcal material is large.

Fæcal Fat Analyses.

—	Case 1.			Case 2.	Case 3.
	P. 1.	P. 2.	P. 3.		
% D.M.	39·6	42·5	34·7	21·2	22·6
Total fat (% D.M.)..	27·0	12·4	10·1	10·5	18·9
Free and combined *fatty acids calculated as stearic acid* (% D.M.) ..	17·4 (64·4 %)	7·8 (62·9 %)	5·65 (56·0 %)	4·3 (41·0 %)	8·8 (46·5 %)
Combined fatty acids (% D.M.) ..	—	—	2·91 (28·8 %)	3·0 (28·6 %)	1·5 (8·0 %)
Neutral fat (% D.M.)	9·6 (35·6 %)	4·6 (37·1 %)	4·45 (44·0 %)	6·2 (59·0 %)	10·1 (53·5 %)

Figures in parentheses indicate the distribution of the fat components expressed as percentages of the total fat.
% D.M. = percentage of dry matter. P. = period.

The serum calcium of Case 3 was 10·4 mg. per 100 c.cm., and the plasma phosphorus 3·04 mg. per 100 c.cm. The serum calcium of another case was 9·75 mg. per 100 c.cm. This latter case had a well-marked hereditary history. Blood analyses therefore appear to reveal no deviation from the normal. This is in agreement with the other workers in this field.

As regards therapeutic measures little can be said. If the disease is a primary defect there probably can be little hope of ever curing the abnormality. Thyroid, thymus, and hypophyseal preparations have been tried, so also has strontium and arsenic. More recently it has been suggested that the condition is due to a parathyroid abnormality. Schabad [16] and Bookman [17] both found that they obtained the greatest retention of calcium when cod-liver oil combined with elementary phosphorus was used. Bamberg and Huldschinsky's [14] observations were inconclusive owing to the wide variability of the mineral retention. Phosphorus administered in experimental rickets appears to cause calcification in certain areas of bone, but these do not appear to be the rachitic zones (Hess [27]). It may be that the increased retentions found by Bookman [17] and Schabad were due to this obscure action of phosphorus.

From the age of one year onward Case 3 received cod-liver oil from time to time. Vitamin D in the form of radiostol was administered after the metabolic period described above. During the following year the patient took either this substance or cod-liver oil. There appeared to be a slight clinical improvement at first, but as time passed this was doubtful. The administration of cod-liver oil preparations in Case 1 did not appear to have any striking clinical improvement; indeed, the bones fractured for the first time some time after the administration of these preparations. Vitamin D did appear to increase the formation of callus in Case 4, although the end-result of the healing of the fractures was not very satisfactory.

These findings are in agreement with those of

Hess,[27] who in his admirable review of rickets and allied diseases states that osteogenesis imperfecta is not benefited by any of the agents which have proved themselves to be specific in rickets.

Summary.

(1) Pedigree tables of four families one or more of whose members have suffered from one or more of the associated defects of bone fragility, blue sclerotics, otosclerosis, and liability to dislocations and sprains have been described. (2) Metabolic studies have revealed definitely diminished retentions of calcium, phosphorus, and magnesium in two children affected with the associated defects of bone fragility, blue sclerotics and hypotonicity of ligaments. There did not appear to be any marked deviation of these minerals from the normal excretory paths in these children and in two adults studied. The concentration of calcium and phosphorus in the blood was normal. (3) Irradiated ergosterol and cod-liver oil did not appear to have any specific effect in these abnormalities.

In conclusion, we wish to thank Mr. John Patrick and Mr. James Taylor for allowing us to describe two of these cases.

We are indebted to British Drug Houses, Ltd., for a supply of radiostol.

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RATES ON FALKIRK INFIRMARY.—The old buildings of Falkirk Infirmary were assessed to local rates on the basis of £2 per bed with a total of £158, but the new infirmary has been assessed at £4 per bed, making a total of £480. The trustees appealed to the burgh valuation appeal court, which has reduced the valuation to £360 for this year only. In Edinburgh and Glasgow hospitals are exempt from rating.

HARTLEPOOL ISOLATION HOSPITAL.—Recently Alderman Clarkson, chairman of the West Hartlepool health committee, laid the foundation-stone of a new infectious diseases hospital which is being erected by the corporation at a cost of £35,000. There will be 40 beds, 22 in the scarlet fever and 16 in the diphtheria blocks. There will also be an observation block containing eight cubicles. The administration block will provide accommodation for the medical officer, the matron, and 16 nurses.

PHYSICAL TREATMENT OF PROSTATIC LESIONS.

BY EDWARD CODDINGTON TITUS, M.D.,

AND

VICTOR COX PEDERSEN, M.D., F.A.C.S.,

OF NEW YORK.

PROSTATIC disease, varying from functional disorder to organic change, is very common after the fiftieth year of life. This paper presents the results of our long experience of the application of general medicine and of urology, and of both together, in alliance with physical methods—chiefly electrical. Important factors are the proper selection of cases and the selection of intensity, source, and application of current. It is not wise and rarely possible to rely on one procedure only.

The existence and pathogenesis of the five lobes of the prostate must be constantly remembered. "Enlargement of the prostate" is not a complete pathological or diagnostic statement. The source and the result of the enlargement must be determined with the aid of all modern diagnostic methods, both clinical and laboratory, and the general health of the patient must be thoroughly investigated. It is essential to recognise without any doubt the moment when the surgical stage is reached. Operation is imperative before lifelong or fatal damage supervenes in adjacent organs.

The aim of electrotherapy is to re-establish active nourishment and cell growth in chronically congested and inflamed areas, and to improve lymphatic function and the absorption of exudate. All physiological processes are deliberate and gentle, and sensitive to very small quantities of chemical substances. The electrons are amazingly susceptible to electrical influences, and electrotherapeutic measures must induce a gradual restoration of function, without sudden sensation, over-stimulation, pain, or discomfort. The nervous influences should be quieting, not exciting; restorative, not depressant. Mild currents, long sessions, and reasonable but always uniform frequency are to be preferred to strong currents, short applications, and irregular repetitions. At the same time, systemic measures must aim at treating the "body at large," because, like the uterus, the prostate is an index of the general health and may influence the whole body.

Method of Application.

The therapeutic measures for prostatic conditions are: (1) Heat by conduction (developed by the current in overcoming body resistance and in increasing cellular activity, as in diathermy and galvanism). (2) Heat by radiation, as in luminous rays and infra-red rays. (3) X rays in small doses as a stimulant and in large doses as a resolvent of the hyperplastic tissues. Their actinic and hæmostatic actions are fully recognised. (4) Static wave current, for its fibrillary tissue contraction, promoting drainage and modifying septic absorption. (5) Galvanism, for its sedative or relaxing electrolytic effect through the negative pole and stimulating or contracting effect through the positive pole.

Phototherapy and mild diathermy should embrace the whole lower abdomen and pelvis, thus modifying the circulation over the widest possible field; contrariwise, the concentration of any method of treatment upon the acute disease is a mistake. The ovary, testicle, and nerves never accept severe treatment. Chronic conditions permit the direction of judiciously energetic measures on the focus. Subacute lesions fall between these limits, and only the results of treatment can determine its selection. Error, if any, had better be on the side of hypotherapy than of hypertherapy.

GALVANISM.

Galvanism induces positive or negative polarity effects, causing electrolytic or chemical, nutritional or destructive changes according to the intensity of the current and the method of its employment. The best results are obtained from batteries and, failing this, from a generator free from the fluctuations of the street current. A dependable and graduated rheostat and an accurate milliampèremetre are essential. The current should never be used without a meter in circuit. An insulated electrode attached to the negative pole is used in the rectum for acute and subacute *conditions because it is sedative and relaxing. The positive* pole is used for chronic conditions because it is stimulating and contracting. A moist pad about 6 by 4 inches connected to the other pole is placed on the pubic region under a sandbag. The amount of current is well below 10 milliampères for acute, and up to 10 milliampères for subacute or chronic conditions, ascending in intensity and producing sensation but no pain. When, however, the positive pole is used in the rectum the electrode must be of ample size and the current very mild in order to prevent adhesive or other undue local reaction.

Galvanism, interrupted by manual or mechanical means, is used to stimulate contractions and to create massage effects. The rate of interruptions should correspond with the known rate of tissue fibrillation. The indications for galvanism are: *first, the relief of congestive states* in non-operative treatment or inoperable cases, alternating with or as a substitute for other methods; secondly, treatment of post-operative atony or damage of the muscle wall and sphincter.

SINUSOIDAL CURRENT.

The sinusoidal current is a rising and falling, unidirectional, continuous current, reversing polarity at the end of each cycle; it causes alternate contraction and relaxation of both striped and unstriped muscle, but without electrolytic effects. The details of its application are the same as for galvanism. The sine wave should have the full rate, half-rate, or quarter-rate of the pulse and be governed by a good controller. The strength of current is determined by comfortable *muscular contractions* and *sensations* and proper meter reading. Galvanic sinusoidal and interrupted galvanism benefit the same types of case.

STATIC WAVE.

The source of the static wave is a motor-driven 8, 12, or 16 revolving-plate static machine, controlled by a multiple step-up rheostat. The *static wave* is a pulsatory capacity discharge of a unidirectional, low-ampèrage, high-voltage current, causing electrophysical contractions and relaxations in tissue and protoplasm. The greater the rotation speed and the wider the spark-gap of the static machine, the greater the potential of current. The static wave current should produce 60–120 capacity discharges per minute and should never cause pain during or after its application. An insulated metal electrode attached to the positive side is applied for clonic action, or as a non-traumatic gross and cellular massage, and the negative pole is earthed. A high-vacuum glass electrode is connected with the negative side for actinic influence and superficial tonic contraction; the positive pole is earthed.

HIGH FREQUENCY.

"High frequency," "alternating," or "oscillating" are synonymous terms for the current produced by a standardised high-frequency machine. A hot-wire meter reading from 0 to 2500 m.a., an open multiple-point spark-gap, and a five-point step-up rheostat control the current. High-vacuum glass electrodes are used for the oudin or unipolar current. An insulated metal electrode on the pubes and another in the rectum or under the buttocks are employed for the bipolar or direct D'Arsonval current. The heat is generated by the resistance overcome by the current in passing through the tissues and by the increased cellular activity. It is always mild and without unpleasant reaction. Such heating is vaso-dilating, nutritional, and relaxing; greater heating is inflammatory, depressing, and possibly harmful. Local diathermy induces healthful vascular and lymphatic dilatation and adds to the nutrition of the prostate in any lesion in which other electrotherapeutic measures are to supplement it.

X RAYS.

X rays are produced by the static machine[1] or the transformer. The high voltage of the static machine gives penetration and its low ampèrage decreases irritation. It is probable that a 60 milliampère-minute treatment with the static machine (at 2 milliampères for 30 minutes) equals or surpasses the same dose from a transformer at 10 milliampères for six minutes. A 5 in. spark-gap on the static machine equals a 10 in. gap on the transformer, and tubes should back up a 5 in. gap accordingly. Small doses cause stimulation and hyperæmia; large doses induce tissue contraction and hæmostasis and decrease cell-growth and cellular disintegration, particularly in neoplastic conditions.

X rays are of service in all hyperplastic and hypertrophic conditions, because of their disintegrating influence. In certain infections X rays sterilise the field and thereby decrease the growth of the infecting organisms.

Application to Various Conditions.

The prostatic conditions for which electrotherapy is useful are *congestion, inflammation, infection*, hypertrophy, and neoplasm. In the recovery period after operation it is valuable in abscess and calculus.

CONGESTION.

Congestion is either extrinsic, arising in the adnexa or the system at large and appearing in the prostate secondarily or concomitantly; or intrinsic, arising within the prostate itself. Extrinsic congestion is secondary to or sympathetic with adnexal or systemic conditions and therefore usually functional. In general practice, systematic examinations often reveal engorged prostates that have arisen amid strange symptom-complexes, such as urethral infection and stricture; urinary calculi; rectal fissures, fistulæ, ulcers, and infection; hæmorrhoids and pruritus ani; organic spinal disease; hepatic stasis; general ill-health, tuberculosis, malaria and cancer; traumatisms and fracture of the coccyx. Intrinsic congestion may be functional or organic. Functional congestion is caused by excesses or perversions of intercourse and masturbation or is associated with other lesions, as already stated. Its symptoms are altered urinary and sexual function. The chief complaint—e.g., dysuria, pollakiuria and retention—may rest on the œdema. Sexual activity is depressed, over-stimulated, or unbalanced.

After removal of the cause as the primary essential, the indications are decongestion and soothing. Both objects are attained by the diathermy-static wave or the light-static wave sequence, which are excellent alternatives. Diathermy (500 m.a.) is applied between a large suprapubic and a large gluteal electrode, exactly over and under the prostate and all its adnexa. Radiant heat and light over the same regions are valuable and efficient. Diathermy balances the circulation and light withdraws the blood to the surface and releases vascular stasis and spasm. Thus each corrects the indolence. The static wave current provides the best deep massage. For those who possess no static machine two methods are *recommended*: (1) Conservative and skilful digital massage is necessary when the microscopic findings and clinical signs indicate follicular prostatitis. (2) The interrupted sinusoidal current at a rate of 30–60 cycles per minute provides a massage action also, but not equally efficient decongestion.

Organic congestion precedes, *accompanies*, and follows all the prostatic diseases in our classification. Its symptoms are urinary and sexual disturbance and often exceed those of the underlying disease, at least temporarily, and thus in hypertrophy may be the cause of sudden obstruction and become serious.

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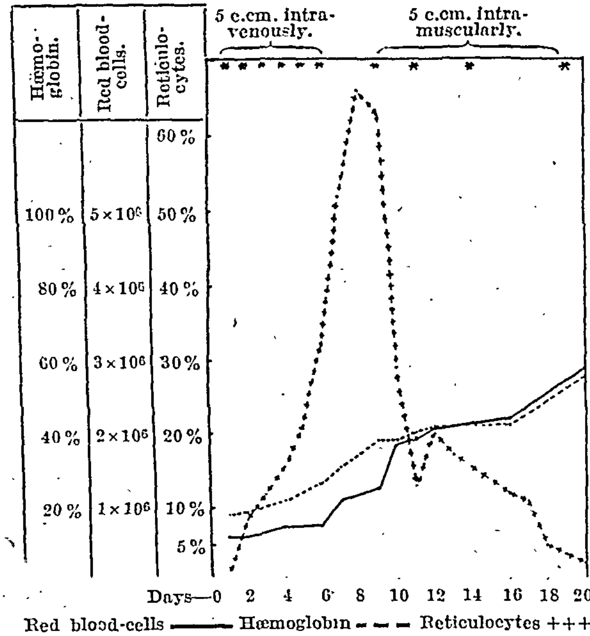
[1] A high-speed static machine of the Baker type, which should develop 10 m.a. and a potential equal to a 20-inch spark-gap between balls of 0·266 of an inch in diameter.

of persistent nausea and vomiting, &c., or else refused such treatment.

The following few cases are chosen to illustrate some of the results that have been obtained.

Group I.—The first three cases in this group had initial red cell counts of 800,000, 760,000, and 600,000 per c.mm. respectively; they were all extremely ill, were typical cases of pernicious anæmia, and their bloods showed strong auto-agglutination. They were given the preliminary injections intravenously, as shown in the Chart, with immediate responses—infinitely better and quicker than are obtained in similar cases after blood transfusions. In the Chart it will be seen that the reticulocytes rose rapidly to 66 per cent. on the seventh day, while the red blood-cells and hæmoglobin increased steadily. The present blood count of this patient is: red blood-cells 5,620,000 and hæmoglobin 90 per cent. The results obtained in this case, using the diluted solution intravenously, encouraged further investigations with the severest cases who were given 5 c.cm. of the undiluted solution daily (2 c.cm. per minute) for three days, and then at varying intervals intramuscularly. The responses were remarkable and within 24 hours the patients were obviously better, while the reticulocytes had begun to increase. During the treatment no other therapy was permitted and no blood transfusions were employed.

CASE 3.



The patient was discharged from hospital on the 20th day.

In these three cases the reticulocytes showed excellent responses with ultimate "peaks" of 41·8, 53·1, and 66·0 per cent. on the seventh, sixth, and seventh days respectively; the red cell counts increased in Case 1 from 800,000 to 3,700,000 (21 days); Case 2 from 760,000 to 3,050,000 (20 days); Case 3 from 600,000 to 3,250,000 (23 days). The cases are now attending at regular intervals as out-patients and receiving periodical injections.

Another case, with an initial red cell count of 1,060,000 per c.mm. and hæmoglobin 24 per cent., showed a similar response, and has been given weekly intramuscular injections of 5 c.cm. On the forty-eighth day she had a blood count of red cells 4,590,000, hæmoglobin 92 per cent., and had received the equivalent of 2 kilogrammes of fresh liver in that period. Two other cases received intramuscular injections with similar satisfactory results.

Group II.—Two cases in this group were particularly interesting and illustrate very well the value of this form of therapy in certain cases with relatively good red cell counts.

In the first case, initial red cell count 1,270,000 and hæmoglobin 42 per cent., there was persistent nausea and vomiting and it was quite impossible to give anything by mouth. After the institution of intravenous injections of 5 c.cm. daily the condition improved so much that the oral administration of hog's stomach was resumed after the blood count had increased to red cells 3,720,000, hæmoglobin 84 per cent.

In the second case, the patient, a very strong-willed woman, initial red cell count 900,000, and hæmoglobin 24 per cent., resolutely refused to take either liver or hog's stomach. She was given six daily injections of the preparation intramuscularly when desiccated hog's stomach was gradually introduced in small quantities into her food unknown to her. She was discharged from hospital with a red cell count of 4,030,000 and hæmoglobin 66 per cent.

Summary.

A method of treatment for the severest cases and also refractory cases of pernicious anæmia is indicated. This involves the use of a highly purified and extremely potent preparation from liver extract; it is practically free from protein and does not affect the blood pressure when injected intravenously or intramuscularly. Both routes are efficient, rapid, and painless, but the intravenous method is slightly quicker in its results. The method is intended to supplement the ordinary oral therapy during the critical stages of the disease. It can, however, be used as the sole treatment—intramuscular injections being readily given at regula intervals according to the needs of the patient.

My thanks are due to those honorary physician of the Manchester Royal Infirmary who placed thei cases at my disposal, to Dr. R. Ellis for his assistanc with some of them, and to the assistant clinica pathologists for carrying out the blood determinations Acknowledgment is also made to Evans' Biologica Institute, Runcorn, for kindly preparing for me th unlimited supplies of a highly potent and purifie solution, which they now have available as Hepate P.A.F.

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VISITORS TO HOSPITALS.—The visiting hours at the Middlesex Hospital have been rearranged to enable visitors to see their friends in the evening. Hitherto the hours have been from 4 P.M. to 5 P.M. on Tuesdays and Fridays and from 2 P.M. to 4 P.M. on Sundays. In future visitors will be admitted from 6 P.M. to 7 P.M. on Tuesdays, the other days remaining unaltered. The change has been made to meet the complaints of working-class visitors that they are unable to leave their employment in the afternoon.—At Worcester Infirmary it is complained that visitors attend in such numbers that the wards are turned into "nothing but a fair," often to the serious hurt of the patients.

CLINICAL AND LABORATORY NOTES

REMOVAL OF A URETERIC STONE BY TRANSCYSTOSCOPIC MANIPULATION.

By H. P. Winsbury-White, F.R.C.S. Eng.,

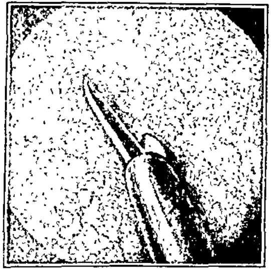
SENIOR ASSISTANT SURGEON TO ST. PAUL'S HOSPITAL FOR GENITO-URINARY DISEASES; UROLOGIST TO ST. JOHN'S HOSPITAL, LEWISHAM.

The great majority of ureteral stones which become impacted in the ureter come to rest in the pelvic portion just outside the bladder wall. When it is certain from the length of the history, repeated observation by radiogram, or by noting the actual size of the stone, that further unaided progress is impossible, then measures to dislodge the stone through the cystoscope should be carefully considered before open operation is advised. The immediate objective of these manipulations is to make the lumen of the remaining portion of the ureter wide enough for the stone to traverse.

Various kinds of ureteral dilators are made for this purpose. The safest and often the best means, however, is to pass one or more ureteric catheters beyond the stone and to leave them in position for several hours. It is often advisable, if the stone is large, to increase the orifice of the ureter by slitting with transcystoscopic scissors. Sometimes it seems impossible to negotiate the catheter beyond the calculus, so firmly is the latter gripped by the ureter. In these circumstances, with the patient tilted head-down, about 3 c.cm. of 2 per cent. procaine are slowly injected through the catheter. After five or ten minutes it should be possible to work the catheter past the obstruction. A second catheter can frequently be manœuvred into position. A few c.cm. of sterilised liquid paraffin are then injected to lubricate the passage of the stone, and the patient is sent back to bed with the catheters undisturbed.

The orifice should be slit before the catheters are passed; this procedure has the doubly advantageous effect of enlarging the slit and causing relaxation of the wall of the ureter immediately above.

FIG. 3.



Cystoscopic view of the transcystoscopic scissors about to divide the ureteric orifice, into which one blade of the instrument has been inserted.

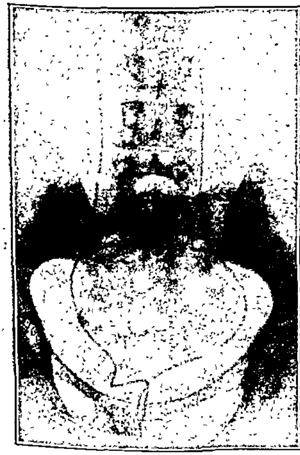
The accompanying illustrations concern an instructive case, sent to me by Dr. P. F. Dalton, which shows the value of these procedures.

The patient was a female aged 15, who complained of pain in the right side of the abdomen over a period of 11 years and some frequency of micturition. There had been a number of sudden attacks of acute pain starting in the right loin, passing into the groin and thigh, and accompanied by vomiting. There was a continuous pain above the right inguinal ligament.

The patient had had several examinations under anæsthesia in other hospitals, but had never been radiographed. On abdominal examination tenderness on deep pressure both in the right renal region and in the lower abdomen on the right side was noted. The urine contained three or four leucocytes and a few red blood-cells per field. Cystoscopy showed some cystitis localised to the trigone and internal urinary meatus. Indigo-carmine injected intravenously appeared from each ureteric orifice in five minutes, in fair concentration, indicating good renal function on both sides. A radiogram showed a shadow in the line of the pelvic portion of the right ureter, consistent with that of a stone.

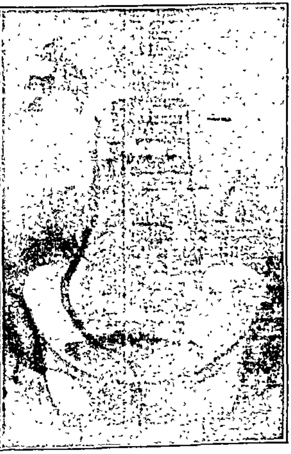
An opaque catheter was passed up the right ureter, met with only a temporary obstruction on the pelvic floor, and then passed on. A further radiogram taken with the catheter in position made it clear that the shadow in question was a stone in the ureter (Fig. 1). The injection of opaque medium up the catheter (Fig. 2) demonstrated that there was only a mild degree of dilatation of the kidney and ureter from back pressure. It was also noted that there was a slight redundancy of the ureter near its upper end, where it was seen to be looped. The relationship of the shadow of the opaque medium in the bladder to that of the stone in the ureter made it clear that the calculus was

FIG. 1.



Radiogram showing a stone in the ureter in relation to a ureteric catheter.

FIG. 2.



Pyelo-ureterogram and cystogram showing that the ureteric calculus lies just outside the bladder.

only separated from the vesical cavity by the thickness of the bladder wall.

A few days after the examination was concluded the patient was given a general anæsthetic, and in the lithotomy position an operating cystoscope was passed. Through this instrument the cystoscopic scissors were introduced, and the right ureteric orifice was incised for a distance of half an inch. Fig. 3 represents a cystoscopic view of the blades as they were about to slit the orifice (the drawing was made from this case while the operation was in progress). Two ureteric catheters (No. 5 Charrière) were then passed up the ureter well beyond the stone, and 5 c.cm. of sterilised liquid paraffin were injected into the renal pelvis. The patient was sent back to bed and the catheters were left in position for six hours. She complained of some renal pain and tenderness and had pyrexia for several days. A radiogram at the end of this time showed the stone in the bladder. The patient was given another anæsthetic, and the stone was crushed with a lithotrite and the fragments removed with the Bigelow's evacuator; she made a good recovery. The method of treatment followed in this case forms a favourable contrast with the alternative of open operation.

APPENDICITIS IN CHILDHOOD.

By D. J. Cannon, M.B., M.A.O. N.U.I.,
VISITING SURGEON TO THE CHILDREN'S HOSPITAL, TEMPLE-STREET, DUBLIN.

Since 1921 I have operated upon 89 cases of acute appendicitis in children. Of the seven which proved fatal, four were advanced cases or showed generalised peritonitis on admission. If we exclude these neglected cases the mortality-rate of the series is about 3·4 per cent.

The death-rate from appendicitis in children, especially in hospital practice, is higher than in adults, and it seems to me that this is because more mistakes are made in the diagnosis and treatment.

DIAGNOSIS.

Prof. D. P. D. Wilkie[1] has lately drawn attention to the important points of differential diagnosis between acute obstructive and non-obstructive appendicitis. In both the pain is always central, at any rate, at the beginning of the attack, but in obstructive cases it is definitely colicky. The most important point, however, is that in the obstructive cases signs of localised or appendix peritonitis may be entirely absent. In my opinion it is the absence of pain and tenderness in the right iliac fossa in such cases that is responsible for inaccurate diagnosis and delayed treatment.

The child tells the mother that it has a pain. The mother promptly administers castor oil, which causes the inflamed appendix to rupture and to discharge its contents through the peritoneal cavity before Nature has had time to throw out its natural defences. And even the physician appears to regard colicky abdominal pains as a natural phenomenon. "It is true," says L. E. Barrington-Ward "that colicky pains may denote some mild peristaltic unrest of a simple nature due to a simple cause, but, on the other hand, they may be the first signs of an imminent abdominal catastrophe." In my opinion colicky abdominal pains, especially when associated with an increased pulse-rate, whether or not the temperature is raised, should be regarded with the gravest suspicion.

If a child complains of abdominal pain and dysuria, pelvic appendicitis should be suspected and a careful rectal as well as abdominal examination should be made.

I am convinced that in children chronic dyspepsia, sometimes associated with intestinal colic and even nausea and vomiting, may be due to kinks of the appendix. These kinks are not inflammatory, and it would be more accurate, therefore, to call these cases chronic appendicular disease than chronic appendicitis. Apart from the inconvenience of the symptoms this condition may sometimes lead to acute obstructive appendicitis. I have demonstrated these kinks on several occasions, and the removal of the appendix has been almost always followed by disappearance of the dyspeptic symptoms.

TREATMENT.

In the acute appendicitis of adults many surgeons defer operation if the case is not seen until three or four days after the attack. It is entirely different with children. It is impossible to forecast what is going to happen when there is infection in the peritoneal cavity. The child's resistance to infection is weaker. If, however, at the time of examination the attack is definitely subsiding, then perhaps it is well to defer operation; and if there is a dense localised abscess it is wise to drain the abscess and leave the removal of the appendix to a later date.

In simple cases fluids may be given by the mouth for the first 48 hours. On the third day semi-solids are administered. Strong purgatives are contraindicated. If there is localised or appendix peritonitis the child should be put into the Fowler position at once and glucose saline should be administered by the rectum. Morphine may be given provided that nothing has been administered by the mouth.

THE PATHOLOGY OF GLANDULAR FEVER

By C. L. G. Pratt, M.D. Liverp.,
MEDICAL REGISTRAR, ROYAL SOUTHERN HOSPITAL, LIVERPOOI

In spite of experimental investigation the ætiolog and nature of glandular fever remain obscure. Tha it is an acute infective process there seems to be n doubt; its mode of onset, its clinical course, t tendency for the Wassermann reaction to be temporari positive, and its occurrence in epidemic form a point in this direction. Since the condition is usuall not alarming, rarely prolonged beyond three week and never fatal, but little is known of the morbi histology. It is of interest, therefore, to place o record the following observations.

Origin of Material.—In March, 1930, I was the subject of an acute febrile attack which, though at first suggesting lymphadenoma with a typhoid type of onset, was ultimately correctly diagnosed as glandular fever. Before the diagnosis was established a gland was removed for section from the posterior triangle of the neck. Constitutional recovery was complete, uneventful, and maintained. The blood picture returned to normal in about two months. The enlarged glands, however, subsided only slowly, several still being palpable one year after the acute attack. As doctor and patient were here one and the same person, no difficulty was experienced in persuading him to submit to a second operation in order to ascertain what changes, if any, had occurred in the gland structure during the interval. Accordingly, a second gland was removed, from approximately the same site, in April, 1931.

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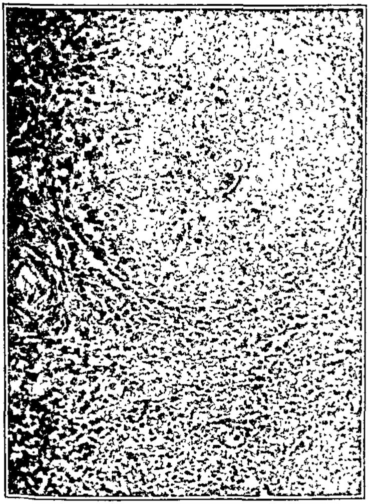
[1] Brit. Med. Jour., 1931, i., 253.

Appearances.—The first gland removed was enlarged, firm, elastic, and pinkish-white on cross-section. Microscopically there was marked active hyperæmia and much serous exudate within the glandular tissue. Early degenerative changes were observable in some of the blood-vessel walls. There were numerous hæmorrhages and several small arteries showed intravascular clotting. The arresting feature was the very considerable hyperplasia of the reticulo-endothelial cells. Though the proliferation was general, many areas showed such intense overgrowth as almost entirely to exclude lymphoid elements, thus producing "reticulo-endothelial foci" or nodules. These foci showed central necrosis and in common with the rest of the reticulo-endothelial cells, cloudy swelling. No tubercle or other micro-organisms were detected and no giant-celled systems could be seen.



Reticulo-endothelial hyperplasia and degeneration. Note focal necrosis.

The gland removed a year later was also enlarged, though not so much as the first. There was still present a good deal of congestion, serous exudate, and old hæmorrhage. Much cellular degeneration was obvious, the germ-centres in some places being particularly involved. The enlargement, as in the first instance, was due to the hyperplasia of the reticulo-endothelial elements. A fair amount of fibrosis, however, was now present.

The appearances described correspond fairly closely to those observed by J. O. W. Bland[1] in the production of experimental glandular fever in rabbits by the inoculation of blood from a human case. The histological picture seems to indicate a toxæmia, possibly due to infection with a filtrable virus, where the main response is called forth from the reticulo-endothelial system, and where the damage is particularly shown in the walls of small blood-vessels.

I am indebted to Mr. W. R. Williams, who removed the glands; to Dr. R. Howard Mole, who reported on the sections; and to Dr. Alan Curtis, who took the microphotographs. I wish to express to them my thanks.

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[1] THE LANCET, 1930, ii., 521.

BRITISH ASSOCIATION.

CENTENARY MEETING IN LONDON.

(*Concluded from p. 762.*)

A MEETING of the Section of Physiology on Sept. 29th, with Dr. H. H. DALE, the President, in the chair, was devoted to a discussion on the

Problems of Asphyxia.

The four main available lines of resuscitation were described—namely, artificial respiration, carbon dioxide and oxygen inhalation, cardiac puncture, and cardiac massage. Their application in carbon monoxide poisoning, anæsthesia, and asphyxia neonatorum was reviewed.

METHODS OF RESUSCITATION.

Sir EDWARD SHARPEY SCHAFER said that any method of resuscitation involving apparatus is virtually useless as it is rarely at hand when required. Reliance has therefore mostly to be placed on artificial respiration. This was first advocated, in 1856, by Marshall Hall, who laid the body upon its face, rolled it on to one side to cause inspiration, and then back again for expiration. In the following year Sylvester put forward what he considered a more physiological treatment. In this the body is laid upon its back, the arms are raised above the head to bring about inspiratory movement of the ribs, and lastly the arms are flexed and compressed against the ribs to expel the air. This has little effect, said Sir Edward, for it raises the ribs only, whereas the diaphragm is the chief agent of respiration; in natural, quiet breathing the diaphragm acts almost alone, movement of the ribs being called in only when breathing is forced. A further disadvantage of Sylvester's method is that an assistant is required to keep the body steady. Then came Howard's method which was originally intended to be carried out by pressure on the lower ribs, the body lying on its back, but pressure on the epigastrium was soon found to be more effective.

As none of these systems would give adequate alteration of the chest capacity, a Royal Commission was set up at the close of the last century to evolve an efficient method of resuscitation. Experiments were carried out on living persons who were holding their breath without closing the glottis; from this came the idea of first squeezing out the air from the chest and then allowing expansion to occur from the elasticity of the parts. This was done by pressing on the small of the back, thus compressing the abdominal viscera and pushing the diaphragm upwards. This, the prone pressure or "Schafer's method," as it is now called, was found to be efficient. It is better than Howard's in that the prone position allows mucus, and water in cases of drowning, to run from the mouth; in Howard's dorsal position the tongue is apt to fall back, obstructing respiration, with a resultant noise of snoring. The speaker mentioned incidentally that snoring is due to the falling back of the tongue during natural sleep and that every snorer can cure himself by lying on his side.

The efficiency of these four methods of resuscitation was tested by measuring the air exchange per respiration. This brought out the superiority of the prone pressure method, which can surpass quiet breathing. The other three were again shown to be quite inadequate. The prone pressure method has also the advantage of being so easy to perform that it can well be kept up for an hour and be carried out by a child. It is essentially physiological, since the expiration stimulates the respiratory centre to start inspiration.

Possible injury to some organ during manipulations is one of the dangers of artificial respiration. The risk is greatest in Howard's method which has resulted in many deaths from ruptured liver. Sir Edward maintains that this risk is obviated by the prone pressure method, and he advocates the use of a pressure of 60 lb. weight. Dr. Drinker, however, has found that an operator who is heavy may exert a far greater pressure, often over 120 lb., and he has met with some cases where damage has been done as, for instance, in motor accidents, where ribs have previously been broken.

Sir Edward put forward a plea for a more extensive teaching of the prone pressure method. It is taught at present in the Army, the Navy, the police, and to boy scouts and girl guides. He suggested that it might well be part of the physical drill in every school. It should certainly be part of the training of the medical student; many lives doubtless have been lost owing to medical ignorance of the right method of artificial respiration.

USES OF CARBON DIOXIDE.

Prof. **Yandell Henderson** described the evolution of the method of carbon dioxide inhalation, which, he said, has two chief uses—namely, as a stimulant to respiration in asphyxia and as a preventive and a treatment of secondary pneumonia. Twenty-five years ago Haldane, Priestley, and Douglas began their work on the part played by carbon dioxide in respiration. By induction from their results and from his own observations Prof. Henderson conceived the idea of the clinical use of carbon dioxide and oxygen inhalation. When a new physiological principle has been discovered and its practical importance recognised, it is, he said, often an extremely difficult problem, requiring time, money, and patience to work out its effective clinical application. The practical problem of administering carbon dioxide is not simple. For this reason it was only ten years ago that the method was introduced into the practical fields of resuscitation, when it was taken up by the gas rescue crews in New York. In the United States the carbon monoxide content of coal gas is much higher than in England, with the result that gas asphyxia is commoner. In New York alone there are nine corps of highly trained men who have had to answer 1600–1900 calls a year to attend to gas leaks. This has given an opportunity, which Dr. Drinker has taken, of studying extensively the problem of resuscitation of carbon monoxide poisoning. At Prof. Henderson's instigation oxygen alone was tried at first, and proved to be useless where respiration is greatly depressed or has stopped. Carbon dioxide inhalation gave better results; a mixture of oxygen with carbon dioxide proved to be far the most effective. It was also noted that after using carbon dioxide neither pneumonia nor subsequent nervous symptoms developed.

Sir **Francis Shipway**, speaking on the value of carbon dioxide in preventing hiccup, post-operative collapse of the lung, and pneumonia, referred to the danger of using it to excess. It is the custom of some anæsthetists, he said, to maintain 5 or 6 per cent. carbon dioxide inhalation throughout an operation. This over-stimulation is liable to cause fatigue of the respiratory centre and may lead to complications. Death from asphyxia during apnœa does not seem a likely occurrence.

Dr. C. K. **Drinker**, from his experience in coöperation with the emergency crews of the New York Consolidated Gas Company, recommended that in practice the prone pressure method should be used where natural breathing is occurring only feebly as there is much to be gained by making the period of asphyxia as short as possible. While the prone pressure method is being applied, and subsequently, oxygen together with 7 per cent. carbon dioxide should be given. This proportion has been chosen in preference to 5 per cent. because some people respond with much less vigour than others. Since the adoption of 7 per cent. carbon dioxide there has been a considerable reduction in the mortality. This fact is leading Dr. Drinker to try 10 per cent. carbon dioxide during the coming winter.

Prof. J. S. **Haldane** said that in mines there is the difficulty of carrying cylinders about; compressed oxygen is, in this respect, more awkward to use than carbon dioxide, which can be transported in liquid form. In this country, he said, public opinion demands that oxygen should be used, although probably it is often quite unnecessary even to use oxygen with carbon dioxide. Carbon dioxide is an immediate antidote to carbon monoxide poisoning, since it relieves the symptoms before the gradual replacement of carbon monoxide by oxygen has taken place. There is probably a double action; the increased ventilation raises the oxygen tension in the alveolar air and the carbon dioxide stimulates the circulation; this latter has probably the greater immediate effect.

RESUSCITATION DURING ANÆSTHESIA.

Sir **Francis Shipway** said that while the prone pressure method of artificial respiration is undoubtedly preferable to Sylvester's method, it is not often applicable during anæsthesia. Most operations are performed in the dorsal position, with the result that the delay caused by changing the position and the loss of asepsis would weigh too heavily against the case. The prone pressure method is very usefully applied to cases where a foreign body or blood has been inhaled. Probably Howard's method is the most serviceable to an anæsthetist.

In cases where the heart has ceased to beat there is a choice of three methods of resuscitation—the intracardiac injection of a drug, puncture of an auricle or ventricle, and cardiac massage. In these emergenci time is all-important, for it is thought that the cel of the central nervous system will not survive mo than a brief period, which is probably fro 5–7 minutes. In one case, recently reported, whe the patient revived after 13 minutes, the subseque history showed some cerebral irritation a few week later, and on recovery the patient was backward at school for two years. Hymans has recently published a paper in which he reports the recovery of cases after 20 or even 30 minutes after the heart has stopped beating, but this raises the difficulty of determining whether the heart's action has really ceased. It is impossible in these moments of acute distress to make observations with the stoical calm of a physiologist viewing a dead rabbit.

Discussing the choice of procedure, Sir Francis said that the subdiaphragmatic route to the heart is useful if the abdomen is open, but in this way the apex alone is reached. Incision of the diaphragm then allows more effective massage to be performed. It has been suggested that the optimum rate of compressions is 70 a minute with intermissions of 15–20 seconds to allow the heart to recover. Massage, however, is being superseded by injection of adrenalin or pituitrin, and recently Hymans has shown that stimulation of the heart by pricking with a needle is sufficient. He suggests that this should be done to the auricle rather than to the ventricle for fear that fibrillation may follow. The proper procedure, Sir Francis considered, is to perform subdiaphragmatic massage if the abdomen is open, or if that fails, puncture of the auricle through the third intercostal space. He feared that the intracardiac injection of adrenalin might damage the myocardium.

Prof. J. A. GUNN and Sir EDWARD SHARPEY SCHAFER reported experiments on animals showing the effectiveness of adrenalin in resuscitation; they did not consider damage to the myocardium to be a likely sequel.

NERVOUS SEQUELS OF ASPHYXIA.

Dr. DRINKER stated that permanent damage to the central nervous system is uncommon after carbon monoxide poisoning. It might be thought that with such a large number of cases there would be in New York a great group of persons displaying all sorts of nervous symptoms referable to nerve-cell destruction through oxygen lack. Such is not the case. The patients either died or got as well as they were before the toxic episode. In seeking information upon the outcome of serious poisoning, the records of 518 patients admitted to Bellevue Hospital have been reviewed. Of this number 124 died in hospital, 118 were transferred to the psychiatric division, and except two, one of whom died of tuberculosis and the other of myocarditis, all were eventually discharged. Fifty-two were mentally depressed when discharged but exhibited no other symptoms. Two patients alone showed symptoms definitely referable to their poisoning. One of these had a rather complete loss of memory and periodical tremulous shaking of the head. The second developed parkinsonian symptoms and was believed to have lesions of the basal ganglia. It is, of course, possible that some degree of loss of memory and change of disposition may have been present in more of these patients, but it is certain that almost none of this large group of patients survived acute poisoning to endure serious neurological sequelæ.

Sir BERNARD SPILSBURY reported two cases in which he had conducted post-mortem examination. The subjects had died after the circulation had been restored for some time by means of cardiac massage undertaken when the heart had stopped for a considerable period. One of the patients, a child of 3½ years, had been operated on for rectal polypi. Seven minutes after the cessation of administration of the anæsthetic the patient stopped breathing and death followed seven hours later. Macro- and microscopical examination at the autopsy revealed changes closely resembling those found in acute encephalitis. Sir Bernard expressed the opinion that the artificial revival of the circulation after stoppage for more than seven to eight minutes could produce no permanent recovery.

NEONATAL ASPHYXIA.

Prof. HENDERSON said he thought carbon dioxide inhalation has a particular application to neonatal asphyxia where the threshold of the respiratory centre may be depressed by the drugs given to the mother. A second purpose is also served by removing atelectasis which, owing to consequent pneumonia, is probably the cause of many neonatal deaths.

Sir EDWARD SHARPEY SCHAFER said that pressure is useless as the difficulty in these cases is due to the fact that the lungs are empty of air and need to be filled. This should be accomplished, if possible, by inducing natural respiration by stimulation of the skin. Failing this, inflation can be effected through a cannula passed into the trachea. Mouth-to-mouth inflation is difficult, since air driven into the mouth is apt to pass into the œsophagus and distend the stomach. He considered that in cases of asphyxia neonatorum adrenalin should always be injected into the heart.

Sir FRANCIS SHIPWAY suggested that as many cases of neonatal asphyxia are due to the drugs administered to the mother if an anæsthetic comes to be used at every confinement there will be more dead babies.

Prof. GUNN described a method of resuscitation of the new-born child by holding the child by the trunk between the hands, and then placing the child alternately in the dorsal and ventral positions. This, he recommended, should be followed by hot and cold water stimulation to the skin.

Sir EDWARD SHARPEY SCHAFER summed up briefly saying that we have much to learn from American methods. The all-important factor in resuscitation is time.

BRITISH MEDICAL ASSOCIATION.

ANNUAL MEETING IN EASTBOURNE.

SECTION OF DERMATOLOGY.

AT the first meeting of this section, the President, Dr. HENRY MACCORMAC, being in the chair, a discussion on

Pruritus Ani

was opened by Colonel W. P. MACARTHUR, who limited himself to pruritus in adults caused by *Enterobius vermicularis*. This worm, he said, took two weeks to complete its cycle; the ingested ova hatched in the duodenum, the larvæ first inhabiting the small intestine, later migrating to the cæcum where the majority of the worms existed, the appendix being a favourite habitat. Gravid females made their way to the rectum and anus to oviposit. The pruritus was caused by their wriggling movements. There was no multiplication of parasites within the body, and auto-infection by the mouth was the rule. Pruritus was the most constant symptom, and was mainly nocturnal, commencing after the patient went to bed. The itching was intensified by heat, and relieved by cold, and ceased some time before morning. Some itching might be experienced during the day, after exercise, or when in close proximity to a fire, especially in the evening, but was never so severe as that felt at night. The discomfort and loss of sleep thus caused led to mental irritability and despondency, aggravated by the fact that the sufferer often concealed his infirmity.

Various reflex phenomena might develop, such as gastric hyperacidity, indigestion (probably due to intestinal catarrh), and frequency of micturition—symptoms which might mislead. Enterobiasis occasionally caused attacks of appendicular colic leading to the removal of the appendix, which was then found to contain worms. Appendicectomy should not be undertaken as a curative measure, for persons who had previously undergone this operation were just as liable to infection as others and were no easier to cure. The activities of the parasite within the appendix, and the resulting damage to the mucous membrane, might lead to the development of acute appendicitis. Owing to lacerations and abrasions of the anal region, perianal eczema might be set up, but on the other hand there might be surprisingly little local injury. Nasal itching might be present.

Enterobiasis should be considered as a possible cause in every case of nocturnal pruritus ani. The most thorough diagnostic measure was a rectal wash-out, administered when the pruritus was active; three or four ounces of saline was all that was required, the rectum having been previously emptied. The fluid which was returned into a suitable receptacle must be examined for worms, care being taken that shreds of mucus were not mistaken for them. Ova were more likely to be found in scrapings from the perianal region, or in rectal mucus, than in the examination of the fæces.

In the treatment the prevention of auto-infection was most important. The hands must be washed every time the surface of the body or an undergarment was touched. Laxness in this respect would be followed by vexatious reinfection. Treatment proper consisted in the removal of the adult female worms by lavage, and the destruction of the developing stages in the cæcum and appendix. For the first, 4 oz. of salt and water, two tablespoonsful to the pint, was best, and should be administered by the patient himself with a 2-oz. enema bulb, the treatment being useless if given when the pruritus was not felt. The second part of the treatment was the administration of anthelmintic drugs in the hope of destroying the parasites before they migrate into the rectum. As the rectal wash-out gave instant relief, the patient as a rule preferred not to be inconvenienced by purgative drugs, though these undoubtedly shortened the treatment. Two grains of santonin with half a grain of calomel were helpful.

DISCUSSION.

Mr. W. B. Gabriel (London), after emphasising the need for thorough examination of the rectum, including proctoscopy and sigmoidoscopy, described a classification of the cases where pruritus was a symptom, and in which treatment was directed towards the exciting cause. It might be due to (1) lack of cleanliness; (2) excessive sweating; (3) leakage of mucus, due to such conditions as prolapsed piles, rectal prolapse, proctitis, &c.; (4) carcinoma of the rectum; (5) excessive intake of liquid paraffin; (6) threadworms; (7) finally in a small percentage of cases no obvious cause was found. In the treatment of "idiopathic," the symptom having gained the importance of a disease, subcutaneous injection of A.B.A. in large doses gave relief, and he reported 66 cases thus treated in only three of which there was complete failure.

Dr. Herbert Brown (Glasgow) said to get a true conception of the subject it was necessary to include pruritus localised to any part of the ano-genital area, for pruritus of the vulva, perineum, or scrotum often accompanied, preceded, or followed pruritus ani, and might be due to the same cause. He emphasised the careful interrogation of the patient as to the exact localisation of the itching, otherwise points of importance might be missed. Where the itching was confined to small areas close to the anus, on the perineum, or on the vulva, A.B.A. injections were particularly useful. Other diseases of the skin must not be overlooked—e.g., ringworm infection due to the epidermophyton, eczema, more especially of seborrhœic type, psoriasis, lichen planus, and lichen simplex chronicus. The last-named was, in his experience, the most important, and was the cause in 18 per cent. of his cases of ano-genital pruritus. Threadworms he thought were not a common cause in adults, but he admitted, after hearing what Colonel MacArthur had said, that he must have missed this causal factor in some cases. In treatment X rays should only be employed after careful consideration, but present-day technique enabled this method to be used with safety. Some cases were exceedingly troublesome; other speakers would, he hoped, tell him why. He thought a team examination should be done before adoption of operative measures, as major operations had been performed without relief.

Dr. G. B. Dowling (London) said that apart from threadworms there were seven causes of pruritus ani: (1) bacterial infection in and about the anus associated with hæmorrhoids; (2) mycotic infection; (3) simple intertrigenous dermatitis; (4) seborrhœic dermatitis; (5) papilloma in the anal canal; (6) psoriasis; (7) psychological disturbances. He had had good results with A.B.A.

Dr. A. R. Hallam (Sheffield) said that in many cases the initial itching was round a tag of skin. He offered a word of warning against the indiscriminate use of X rays, as over-dosage so altered the skin that the itching became worse.

Dr. Agnes Savill (London) suggested that the leakage of liquid paraffin was a common cause of pruritus. She emphasised the importance of cleanliness, and the protection of the anal region from fæcal irritation by the use of vaseline before defæcation. A sentinel pile was often the cause of a relapse. She recommended the use of ultra-violet light, which should not be given on the same day as X ray treatment for fear of dermatitis.

Dr. J. Beatty (Cardiff) described itching as a sensation of capillary pulsation.

Mr. A. Dickson Wright (London) had not seen permanent improvement in cases treated with A.B.A. He had treated cases by dividing the nerves supplying the pudendal area, the incision being made midway between the anus and the ischial tuberosity. The results were good, and no paralysis of the sphincter ani followed.

Dr. J. H. Anderson (Ruthin) reviewed a short series of cases in which pruritus ani was a symptom; in nearly half of them there was nervous instability in a near relative.

Dr. A. C. Roxburgh (London) had found X ray treatment useful in clearing up dermatitis in chronic cases. He had also found alcohol injections of great value in pruritus.

Dr. J. D. Rolleston (London) emphasised th importance of looking for tabes as a cause of an pruritus.

Dr. Alexander Hall (Brighton) spoke of th frequent association of pruritus with congestion of the liver, and stasis round the anus.

The President expressed appreciation of Colone MacArthur's work. He felt that many cases of pruritus due to thread worms must have been missed.

Onychia.

Dr. H. D. Haldin-Davis (London) read a short paper on onychia as an occupational disease. It was remarkable, he said, how little had been written about onychia considering how often the nails were exposed to injury. Alteration of the nails was frequently found in workers in chemical works, in breweries, especially in those occupied in cleaning out casks. In many occupations the terminal portion of the nail was rubbed down. Inflammation of the base of the nail was common in such occupations as beer bottling, office cleaning, and domestic service. Too vigorous use of the orange stick was also a possible cause.

Dr. Rolleston said that diphtheria should be thought of as a cause of onychia in hospital residents and nurses.

Dr. Twiston Davies (Brighton) had tried dipping the tips of the fingers in collodion before washing, as a preventive, but without success. He considered that the clinical behaviour of chronic onychia was inconsistent with its being mainly due to mechanical causes. Individual nails recovered, and relapsed, apparently spontaneously whether or no the mechanical cause was removed.

Dr. H. C. Semon (London) asked if any of Dr. Rolleston's cases of diphtheritic onychia had developed paralysis. He supported Dr. Haldin-Davis's view of the importance of maceration by water, soap, and soda solutions as the primary cause of most cases of onychia in hospital practice, where it was far more common than in private. The use of rubber gloves, in his experience, increased the chances of cure, which was also assisted by the daily application of pure monsel to the nail folds.

Dysidrosis.

Dr. Dowling read a paper on the ætiology of dysidrosis, which was commonly thought to be due to retention of sweat by the follicles of the skin. He described the characteristic feature of the disease; the small vesicles, like boiled sago grains, which later run together and form bullæ. The hands were always affected, and the feet almost always. Ringworm was present in a large number of cases, microscopic examination of scrapings of the sodden tissue between the toes showing the characteristic mycelia. The thrush fungus was also capable of causing the same condition. The disease was due to an exogenous irritant. Seborrhœic eczema might also be found on the scalp. The condition was thus shown to be a vesicular eczema. In cases where there was no obvious cause the sweat itself might be the irritant.

The President doubted if an infection of the feet could cause the condition on the hands.

Dr. Roxburgh agreed with Dr. Dowling; he had found that, if the lesion on the feet was cured, the lesion on the hands cleared up.

Dr. Twiston Davies said he had not found any association of epidermophytosis of the feet with dysidrosis.

Dr. Semon said that in his experience the association of the two was rare. He thought that a discussion on this subject was not complete without a reference to Benedek's interesting work and theories.

Lichen Planus.

Dr. I. H. McCaw (Belfast) read a paper on the treatment of lichen planus by applying X rays to the cervical and lumbar enlargements of the spinal cord, first reported from France in 1924 by Pautrier and Hufschmit. Since then many French authorities had reported good results. One method consisted of applying filtered X rays to the whole of the spinal cord from the first dorsal to the fifth lumbar segments; the other of giving unfiltered X rays to the interscapular and lower dorso-lumbar regions only. In his own cases he had given two mid-line exposures with the rays directed vertically, one interscapular at about the level of the second dorsal vertebra, and the other dorso-lumbar at the level of the second lumbar segment, the dosage being half an erythema dose filtered through 0·5 mm. aluminium. Five cases of acute lichen planus were relieved of itching within a few weeks, the rash disappearing rapidly afterwards; one case of lichen verrucosus was uninfluenced; in one case of typical lichen planus, without itching, the rash was uninfluenced by two X ray treatments.

In the discussion which followed Dr. Herbert Brown, Dr. Haldin-Davis, the President, and Dr. Roxburgh took part.

SECTION OF PUBLIC HEALTH.

The final session, Sir George Buchanan being in the chair, opened with a discussion on the problem of the child in the tuberculous household, introduced by Dr. R. C. Wingfield and Dr. F. R. G. Heaf.

Dr. J. A. Glover then opened a discussion upon

Acute Tonsillitis

and some of its sequels, reading a paper by Dr. F. Griffith and himself on the bacteriological and epidemiological aspects. The paper, illustrated by many diagrams, was mainly concerned with outbreaks of tonsillitis, conveyed by droplet infection in well-to-do boarding schools, some of these outbreaks investigated for the Ministry of Health, and others for the Medical Research Council. The authors emphasised the close epidemiological and bacteriological resemblance between epidemics of tonsillitis and those of scarlet fever, both being due to infection with hæmolytic streptococci of the *pyogenes* group. When this infection has taken place the subsequent course is dependent on the pathogenic qualities of the infecting strain, the state of immunity of the individual attacked, and the dosage, the latter probably proportional to the level of infection in the community as shown by the carrier-rate, and to conditions, such as overcrowding, which favour rapid transmission.

Infection of the throat with hæmolytic streptococci produces varying clinical pictures in different persons. These include: first, a symptomless infection, or healthy carrier state; secondly, tonsillitis; thirdly, febricula, feverish catarrh or pharyngitis, without noticeable sore-throat; fourthly, scarlet fever. Although many serological types of hæmolytic streptococci may cause scarlet fever, certain types are specially equipped to set up the complete scarlatinal syndrome. The work of Allison, Griffith, and Gunn had shown that in London four types known as types 1, 2, 3, and 4 (Griffith's) are together responsible for 70 per cent. of the cases of scarlet fever admitted to fever hospitals, the remaining 30 per cent. being caused by strains forming a group of heterogeneous types. Epidemic tonsillitis without rash is generally attributable to strains belonging to the heterogeneous group, but these strains cause scarlatina when their toxigenic powers are sufficiently high to overcome the antitoxic immunity of the person attacked. On the other hand, however, observations on certain school outbreaks of tonsillitis attended with severe complications, but without typical scarlatinal rashes, suggest that the two chief types concerned, types 1 and 2, may not invariably be of high toxigenicity. Many bed charts of dormitories were given showing that in epidemics of scarlet fever cases of tonsillitis and mild pharyngitis occur side by side with the cases of scarlet fever, and, if bacteriological examination be made, numbers of healthy carriers will also be detected, all yielding the same type of hæmolytic streptococcus as the scarlatinal cases. These unsuspected sources of infection constitute one of the most difficult problems in the control of scarlet fever.

Epidemics of tonsillitis or the occurrence of "dropping" cases of scarlet fever, and perhaps of otitis media, in schools are generally associated with a high carrier-rate of hæmolytic streptococci. Measles and influenza, even in good hygienic conditions, increase the spread of hæmolytic streptococci, which are the chief causes of serious complications in these diseases, but epidemics of tonsillitis and high carrier-rates of hæmolytic streptococci are often signs of the existence of environmental conditions which favour a rapid and easy transmission of infection, conditions such as crowding of beds, deficient floor area, and deficient ventilation in dormitories. Adequate spacing and ventilation of dormitories and class rooms, and proper intervals of three feet between beds in dormitories, are therefore important factors in the prevention of the spread of hæmolytic streptococcal infection in schools.

There is, the authors concluded, a close epidemiological similarity between otitis media and scarlet fever, since the highest incidence of both diseases coincides with the peak of the wave of tonsillitis. The attack-rate of otitis media for boys is considerably higher than for girls. By far the greatest incidence was in the winter terms, in which there was no swimming. Previous tonsillectomy was without influence on the incidence of otitis media. A well-marked relationship exists between epidemics of tonsillitis and epidemics of acute rheumatism. Acute rheumatism is comparatively rare in public schools, but two small outbreaks were illustrated. The peak of the rheumatism wave followed the peak of the tonsillitis wave after an interval or lag period of two or three weeks.

DISCUSSION.

Dr. E. H. R. HARRIES (Birmingham) confirmed Dr. Glover's observations on the high percentage of Dick-positive reactors in well-to-do boarding schools, which thus contrast with the public elementary schools, and so with the usually accepted percentages for boys and girls of corresponding ages. In fever hospitals they saw scarlet fever epidemics at a different angle, and the paper suggested new and interesting lines of investigation. He had often seen cases of scarlet fever from homes where there were cases of tonsillitis and of other diseases, such as erysipelas.

Dr. S. MONCKTON COPEMAN (London) recalled epidemics of scarlet fever in the 'eighties of last century, and reminded the section of their debt to E. E. Klein for the earliest investigations of streptococcal throat infections.

Dr. R. A. GLEGG (Lewes), speaking of the sequelæ seen in the Brighton-Hove epidemic, said that adenitis, erysipelas, otitis media, and acute rheumatism were the principal.

Dr. TERTIUS CLARK referred to the curious absence of scarlet fever in Malaya. When the disease is imported it does not spread and, although the young population is Dick-positive in the usual proportions, it becomes Dick-negative with age, as is seen in countries where scarlet fever is common.

Dr. R. H. WILSHAW (Worthing), Dr. LAWSON, and Dr. W. H. BRADLEY (Stratton-on-the-Fosse) also spoke.

REVIEWS AND NOTICES OF BOOKS

Detachment of the Retina.

A Contribution to the Study of its Causation and Treatment. By J. RINGLAND ANDERSON, *M.C.*, F.R.C.S. Edin., Ophthalmic Surgeon to the Alfred Hospital, Melbourne. With a foreword by Sir JOHN HERBERT PARSONS, F.R.S. Published for the *British Journal of Ophthalmology* by the Cambridge University Press. 1931. Pp. 207. 20*s*.

UNTIL a few years ago it was generally believed that the existence of a hole in a detached retina was fatal to any prospect of cure. Prof. Jules Gonin, of Lausanne, has taught us that in most cases the only rational prospect of a cure is, in the first place, the detection of a hole by means of the ophthalmoscope; in the second place, its accurate localisation; and in the third place, its obliteration by means of the operation known as ignipuncture. The wide acceptance of his teaching marks a change from what may be called the era of præ-Gonin pessimism to that—not of actual optimism, but of a more hopeful outlook; not that there have not been optimists on the subject before Gonin, but whereas Deutschmann, who claimed a large proportion of successes for his own treatment, made few, if any, disciples, Gonin's methods are now being widely followed both in his own country and in others. Mr. Anderson's book is a painstaking summary of nearly all that has been published on the subject during recent years. The tables of references, at the end of each chapter, themselves run to several pages, and add considerably to the value of the book. After two preliminary chapters, the author discusses the pathogenesis of the condition.

There are four competing theories. Early observers considered the stretching of the choroid and sclera which takes place in myopia to be the actual cause of the retinal separation. On the other hand, numbers of patients with detachment of the retina are not myopic, while it is the exception and not the rule for myopes to have a detachment; moreover, the frequency of its occurrence in myopes appears to bear but small relation to the degree of myopia, which would be otherwise were the theory of distension applicable. The second theory is that of attraction, which attributes detachment to a pull from the side of the vitreous by fibrous strands or adhesions. The third is the theory of depression, as when there is a sudden lowering of tension in the globe due to loss of vitreous. The fourth is the theory of exudation—i.e., exudation into the interretinal space from the choroidal vessels. Each of these theories is fully discussed with a wealth of references to original authorities. Neither of them is applicable to more than a limited number of the cases that actually occur, but with regard to the majority of cases, generally known as "spontaneous," because the mechanism by which they are caused is still not fully understood, the second theory—that of traction—finds more favour at the present time than either of the others. The common finding of tears or holes in a detached retina is a fact, and various theories have been put forward to account for their formation. Leber first postulated a liquefaction and fibrillary degeneration of the vitreous causing the formation of bands which drag on the retina and tear it where it is attached by inflammation to the choroid. Later he postulated a "præretinitis" causing adhesions between the vitreous and the internal limiting membrane of the retina. Gonin finds a chorio-retinitis to be of common occurrence in the equatorial zone, and since most tears and holes are found in this region, or in front of it, he attributes their formation to the stretching of adhesions. On the other hand, in cases of detachment, visible bands in the vitreous are seldom seen. When they are gross, as in retinitis proliferans, they do not, as a rule, produce detachment. Cystoid degeneration of the retina near the ora serrata is not uncommon in myopes and in old people, but the exact mechanism by which tears are caused is not fully understood. Anyhow most, though not all, authorities now agree with Gonin that the presence of tears or holes in the retina is fundamental. In the chapter on differential diagnosis the principal subject is choroidal sarcoma, which must always be in the surgeon's mind when he finds in a patient, seen for the first time, the signs of retinal detachment.

Finally we come to the subject of treatment, and those who consult the book for practical help in this matter will perhaps be somewhat disappointed that so comparatively few pages are devoted to the discussion of the only operative treatment that gives any prospect of real help. In dealing with a case of detached retina, therefore, the first essential is to recognise the existence of a hole. This is often a tedious business, especially as a hole is not always easy to recognise even when visible. Some help will be afforded by Prof. Vogt's diagrams, 13 of which are reproduced in this book. The second essential is to localise it exactly, so that the spot on the outer side of the sclera corresponding to the hole may be accurately defined. This involves complicated measurements to be made as a preliminary to operation. An obvious criticism is that when the hole is in a part of the retina that is waving about in the vitreous chamber the accurate localisation of its position becomes impossible until the intervening fluid has been removed. Thirdly, the operation of ignipuncture is performed either with the Paquelin cautery (Gonin) or with the galvano-cautery which has been more in favour at Moorfields. The details of the operation as performed by Gonin are described, and should be collated with the slightly different method employed at Moorfields.[1] It is doubtful whether the process of cure, when effected, is actually that of obliterating the hole, as maintained by Prof. Gonin. It seems far more probable that the hole is cut off from the surrounding inter-retinal space by means of adhesions between choroid and the edges of the hole, just as in a case of iris bombé the pupil is cut off from the anterior chamber by means of a circular adhesion.[2] This would be sufficient to prevent fluid from the vitreous chamber from entering the inter-retinal space, and to ensure this some English authorities practise a somewhat wide cauterisation of the choroid without penetrating into the vitreous chamber, which may be liable to set up fresh disturbance there, and even hæmorrhage, which is the most dreaded complication of the operation.

In the final chapter of Mr. Anderson's book the question of prognosis is discussed. Gonin and Vogt claim that the percentage of cures after ignipuncture is approximately 50. At first only recent cases with duration of a few weeks were considered hopeful, but later cases of much longer duration were included, but the prognosis is naturally not so good in these cases.

Moreover, the word "cure" needs definition. It is one thing to obtain a reattachment of a detached retina; it is another to restore its function, and the longer the detachment has lasted the worse is the prospect in this respect; also the number of cases where relapse, or a fresh detachment takes place after months or even years, affects the prognosis. It is far too soon to pass a final judgment. Nevertheless, the Gonin treatment does mark a considerable advance in the treatment of detached retina, and most will agree with the author of this book when he says that the outlook is considerably brighter than it was some years ago. Sir John Parsons, in his foreword, refers to the new treatment as affording a "ray of hope" to sufferers from the disease.

Recent Advances in Cardiology.

Second edition. By C. F. TERENCE EAST, M.D., F.R.C.P., Junior Physician, King's College Hospital; Physician, Woolwich Memorial Hospital; and C. W. CURTIS BAIN, *M.C.*, M.B., M.R.C.P., Physician, Harrogate Infirmary. London: J. and A. Churchill. 1931. Pp. 353. 12*s.* 6*d.*

Drs. East and Bain deserve congratulation for having kept the second edition of their book substantially the same size as its predecessor, though a new and useful section dealing with the use of massage and exercises has been introduced. Various other chapters have been partially rewritten. Each chapter is an essay on some aspect of cardiology in which advances in knowledge have been made in recent years, so that the book fails to give a complete picture of the modern conception of cardiology as a whole. Though it is somewhat disjointed, it contains much useful information, in addition to a very full list of references to recent original papers on cardiology.

The fact that this book is not adapted to the needs of the medical student will make it the more valuable to advanced workers.

Ronald Ross, Discoverer and Creator.

By R. L. MEGROZ. With a preface by OSBERT SITWELL. London: George Allen and Unwin, Ltd. 1931. Pp. 282. 10*s.* 6*d.*

THIS book is a frank piece of hero-worship, so frank, we might imagine, as to be embarrassing to its subject. It is dedicated primarily "to all true hero-worshippers," and it is prefaced by a discriminating man of letters who says "it is difficult not to become dithyrambic." The book is divided into two parts: (1) biographical and scientific, and (2) literary work. The first part contains much that will be familiar to those who have read Sir Ronald's autobiography. Though many details in those comprehensive memoirs are omitted, the author acknowledges indebtedness to Sir Ronald for patient response to innumerable questions, and shows by dates that his own statements as to Sir Ronald's work before 1916 were not based upon any personal knowledge. He has not been able to add anything to records which have long been available or to help in the comprehension of old contentions. The second part of the volume consists of the author's estimates of Sir Ronald's varied literary output; of criticism there could be but little in a book avowedly written in the spirit of hero-worship. That spirit is very creditable to the author, but the wholesale surrender to it will not, we think, induce readers to buy Sir Ronald's own works—an outcome of devotion that may not have been anticipated. The book closes with a seriatim list of the high honours and rewards which Sir Ronald has received, leaving the pleasant impression that if he had many obstacles in his early path, and if his claims have sometimes been antagonised in a manner painful to himself, he has at least not been subjected to the neglect which has been the lot of so many scientific pioneers.

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[1] Doggart, J. H., and Shapland, C. D.: Brit. Jour. Ophth., May, 1931, p. 257.

[2] Fisher, J. H.: Ibid., June, 1931, p. 317.

Notes on Radium Therapy.

For Medical Students. By HECTOR A. COLWELL, M.B., Ph.D., M.R.C.P. Lond., *D.P.H. Oxf.*, formerly Director of the Radiotherapeutic Department and Lecturer on Radiology and Biophysics, King's College Hospital. London: H. K. Lewis and Co., Ltd. 1931. Pp. 163. 6*s*.

Dr. Colwell's reputation as a teacher will be enhanced by this little book. He has kept consistently within the compass he has set himself, and his style is clear and readable. The book is intended for students preparing for their final examination, and for others who may wish to know something about what is being done in radium therapy. In some 160 odd pages is provided reliable information on the chemistry and physics of radium, the technical points which crop up in its therapeutic use, as well as a general review of the ways in which cancer of the various sites of the body is being treated at the present day. There is real information within these pages, and not only that, but the author's attractive style comes through it very well.

We commend the book as a modest but useful contribution to radiological literature.

An Introduction to Pharmacology and Therapeutics.

Second edition. By J. A. GUNN, M.D., D.Sc. Edin., M.A. Oxf., Professor of Pharmacology in the University of Oxford. London: Humphrey Milford, Oxford University Press. 1931. Pp. 233. 5*s*.

Prof. Gunn's admirable little book has reached a second edition within two years of its publication. It makes an appeal alike to teachers and students. After so short an interval but few alterations are required, but a new chapter has been introduced which deals with the action of drugs on the respiratory system, and provides a simple and clear account of a subject not widely understood. The book adequately fulfils the author's purpose of providing the student with a short but comprehensive survey of the main facts of pharmacology and therapeutics, and deserves to maintain its popularity.

Poisons and Poisoners.

By C. J. S. THOMPSON, M.B.E. London: Harold Shaylor. 1931. Pp. 392. 21*s*.

Mr. Thompson, the honorary curator of the Historical Section of the Museum of the Royal College of Surgeons of England, adds here to his interesting researches into the side-walks of medicine, by collecting, in one volume, historical accounts of famous poisoning mysteries in ancient and modern times. The book is closely packed with briefly written summaries of all the sensational poisoning cases that have found their way to trial, and these narratives are preceded by a definition of poisoning and interesting essays on poisoning generally—the poisons used by primitive man, by the inhabitants of Classic Greece and Italy, by the Hindus and Chinese. Other chapters deal with ancient antidotes and protective methods, the mandrake and poisons used by witches, love philtres and the French poisoning epidemics in the sixteenth and seventeenth century, and with royal and historic poisoners.

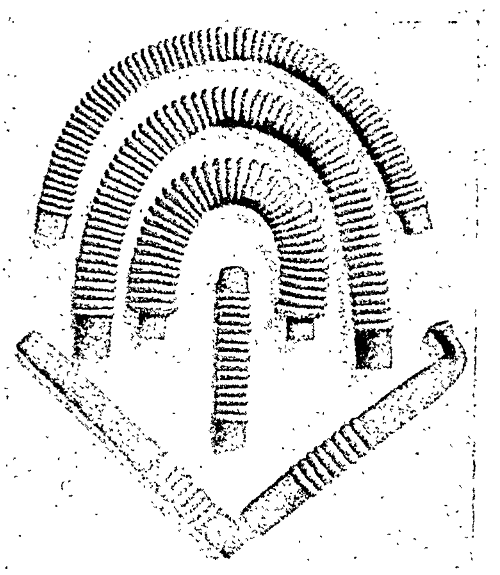
No such compendium of crime in its most revolting aspect has ever been brought together before. All the poison mysteries of which the general reader is ever likely to have heard are dealt with, from mediaeval times down to June of this year, for an account is included of the trial and acquittal of Mrs. Hearn for the murder of her friend Mrs. Thomas. The reader is spared moralising and vain surmises as to the explanation of the cases which still baffle solution, and he will be heartened by the author's closing page. Here Mr. Thompson records the considered opinion that the toxicologist and pathologist have now become such formidable foes to the poisoner, that he is no longer able to administer his deadly agents without considerable risk of discovery.

This is a valuable book of reference, for the dates are given carefully in respect of each recorded case, so that a fuller account, if necessary for any purpose, can be readily obtained.

NEW INVENTIONS

UNKINKABLE TUBING.

THE tubing shown in the illustration is practically unkinkable, extremely flexible, and maintains to a remarkable degree its freedom of bore in all positions. Covered with fabric, it is familiar to many as a part of the gas mask used during the war. The makers, Siebe, Gorman and Co., now supply similar tubing of pure rubber, which I have found of great use in anæsthetics—e.g., as a connexion between the face mask and a McKesson apparatus, or between any form of endotracheal intubation and the anæsthetic supply. They are procurable in various lengths and sizes, from ¼ inch diameter upwards, and appear to have many potential uses in medical practice.



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o explain fully what the fall in sterling means th drug market would involve a tour of the rld with the British Pharmacopœia as companion The tour without the companion would e agreeable enough, but it must suffice to give a few examples of how prices have reacted to the monetary upheaval. It must be remembered, however, that nearly all drugs will be dearer, in greater or lesser degree according to the country of origin. Indeed, the products of our own factories will not be immune, since they depend largely upon imported raw materials. That very important winter drug, cod-liver oil, is a notable exception. Norway, the source of this country's supplies, has followed our example and gone off the gold basis, so that the £ will buy about as much in Norway to-day as it would buy three weeks ago. It is conceivable that cod-liver oil may advance in price before the winter is over for reasons associated with the law of supply and demand, but so long as the Norwegian exchange remains reasonably stable, round about par, changes in price will not be due to currency disorders. Quinine sulphate is 30 per cent. dearer; the raw material comes mainly from the Dutch East Indies, and the convention of quinine makers bases its quotations on the Dutch guilder. Iodine and its salts have been advanced by 25 per cent.; seeing that the bulk of the world's supply comes from Chile this sharp rise seems curious, but the explanation is that the crude material is sold by the Chileans on the gold-dollar basis only. The great advance in the prices of such commonly prescribed drugs as quinine, iodine, and potassium iodine would have called for comment even had they stood alone, but when we consider that similar advances have been made in the prices of many drugs it becomes clear that the effect on the drug bills of hospitals will be serious. Japanese refined camphor has moved up in sympathy with the upward movement of the yen in terms of sterling; the price is fully 25 per cent. higher. Up to the present British refiners of camphor have not advanced their quotations to a corresponding extent, but they will be compelled to do so in due course. The market for quicksilver is controlled by a Spanish-Italian understanding, and when the pound lost its moorings this barometric indicator rose more rapidly than it has ever risen before. As a consequence, calomel, corrosive sublimate, and all the other salts of mercury are much dearer. Citric acid, whether of Italian or American origin, has advanced in price substantially, and therefore potassium citrate and all the other citrates have gone up in price. Cream of tartar is dearer by about 25 per cent. to the importer.

Our crude drugs come from all over the world. The rhubarb of medicine is not the kind that is grown in our kitchen gardens, nor is opium obtained from Shirley poppies, as the man in the street might suppose. Our medicinal rhubarb comes from China, and is dearer because the drop in the £ has sent up the price of silver on which metal

Chinese transactions are based. The prices for drugs from the United States, among which are such well-known commodities as cascara sagrada, senega, and podophyllin, will cost the British importer about 25 per cent. more should the dollar exchange remain approximately at its present level. Gentian, colchicum, belladonna leaves and root, and liquorice root, among many others, reach us from Central Europe, and their prices will vary according to the rate of exchange of the country of origin. Chamomiles come from France and Belgium and are already 25 per cent. dearer. Scammony from the Eastern Mediterranean, stramonium from Germany and Hungary, and tragacanth from Persia are all dearer. Cinchona from the Dutch East Indies, valerian, whether it comes from Belgium or Japan, have also mounted up in price, but these named drugs are but a few out of hundreds for which the British public will have to pay more. Moreover, prices will not be stable but will vary according to the value of the pound in the countries from which our supplies are obtained.

The main source of supply of many of our fine chemicals and synthetic products is Germany, and so long as that country remains on the gold standard, and the pound is at a heavy discount there, an almost interminable list of drugs will be substantially dearer. Quotations for shipment from Germany are now based on the pre-crisis rate of 4·86 dollars to the pound, so that for the time being the importer's bill for these items has gone up by about 5*s*. in every pound; in other words, the importer has to pay about 20*s*. for 16*s*. worth of goods. France and Switzerland are also very important sources of supply of fine chemicals and so-called "new remedies," and the cost of these has gone up to a like extent. Much the same applies to essential oils from Sicily, America, and Japan. It may be that if the pound remains in disgrace long enough our own manufacturers of fine chemicals, sheltered by the protection afforded by the tariff-effect of the discounted pound, will be stimulated to produce in this country some of those commonly prescribed synthetic remedies which are not made here at present. It may also happen that our home manufacturers will be enabled to increase their output of products which are already made here in commercial quantities and sold in competition with Continental producers. To mention only one range of drugs, German makers of bromides have been endeavouring to embarrass British makers by the process of underselling for a long time past; up to the time of the monetary crisis they had not succeeded, and their efforts in that direction will have to be postponed until the pound looks the mark in the face again. The extent to which hospital drug bills will be increased cannot be measured by the increased cost of drugs to the importer; his outlay of capital will be larger, and to protect himself he may have to charge more than the increased amount to the distributor who supplies the hospitals, and the distributor in turn may be compelled to have regard to his expanded monetary outlay when fixing reselling prices.

THE OBSTRUCTING PROSTATE.

FAILURE to recognise the fact that different pathological conditions are grouped under the convenient heading of senile enlargement of the prostate has led to much confusion, more especially in articles dealing with results obtained from various methods of treatment. Even the term enlargement is a misnomer, for in many cases of obstruction the prostate is normal in size. In others, a local enlargement may have occurred, but it can only be discovered with the help of a cystoscope by one specially skilled in this form of examination. The troubles that arise from the prostate in the later years of life are not due to a single pathological entity but to a variety of changes affecting that gland, and the causes which are responsible for these changes are imperfectly understood. Whilst it is generally agreed that the small hard prostate often found in cases of obstruction is the result of chronic inflammation, no certain explanation has yet been given of the commoner soft and definitely enlarged gland. Perhaps the most commonly accepted view is that this type of enlargement is adenomatous in character, although against this view is the fact that as a general rule adenoma appears at a period of functional activity rather than in the later years of life when this activity is on the wane. Formerly CIECHANOWSKY's view that the glandular increase is apparent rather than real, and due to dilatation of acini following inflammation round the ducts, found considerable favour, but of late this inflammatory explanation of enlargement has become less popular. Indeed, the only serious rival to the theory of adenoma is that advocated by Mr. KENNETH WALKER in his Hunterian lecture[1]—namely, that the enlargement is in the nature of a fibro-epithelial degeneration analogous to the condition which may be found in the female breast at the time of the menopause. According to this theory the enlarged prostate is the site of a particular form of degeneration occurring at the male climacteric and implicating the whole of the genital tract.

Where the pathology is in doubt but little progress can be made in ætiology and prevention. If the theory of adenoma be correct, no preventive treatment can be formulated until more is known of the causation of new growths in general. If, on the other hand, the enlarged prostate is an involutionary process endocrine therapy, provided that sufficiently potent extracts are available, should have some effect in preventing the onset of enlargement. It must be admitted that none of the theories of causation explains why one man who has reached the age of 60 should have developed an enlargement of his prostate, whilst three of his fellows who have followed a precisely similar manner of life have escaped. But although enlightenment as to causation and the hope of prevention thus still lie in the future, treatment cannot be postponed. Does surgery offer the only hope of dealing adequately with the condition, or may certain cases of enlargement be amenable to other forms of treatment? On p. 788 of our present issue appears a paper dealing with the physical treatment, as practised in New York, of various prostatic lesions, amongst others the enlargement of old age. Dr. TITUS and Dr. PEDERSEN claim that physical therapy is a valuable agent in the treatment of enlargement and is a means of postponing or even of avoiding the necessity of subsequent surgical intervention. A few months ago Dr. J. CURTIS WEBB claimed[2] equally favourable results from the use of deep radiotherapy, diathermy, and the static wave. In foreign medical literature there are many references to the value of radiotherapy in the treatment of prostatic lesions. Our own genito-urinary surgeons have been apt to regard the idea of attempting to deal with well-marked enlargement of the prostate by any form of electrotherapy as illusory. Any amelioration of symptoms has been held to be temporary and due to the periods of improvement which are the normal course of prostatic obstruction. The obstruction, they contend, is not entirely explained along mechanical lines; there is a dynamic factor in the nature of a spasm, as well as a static one in the form of enlargement. Electrotherapy may have an effect on the spasm; it can have little or none on the underlying enlargement. The position of the surgeon is easily understood. Prostatectomy has justified itself as the operation of choice in all cases of enlargement associated with obstruction. So far he has not been convinced that any form of electrotherapy is able to diminish the size of the prostate, except perhaps deep X ray therapy given in such large doses as to be dangerous to the vitality of the intervening tissues. He is therefore inclined to view with suspicion the employment of measures other than surgical except perhaps in early cases, or in those in which an operation for one reason or another is too risky to be undertaken.

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[1] Brit. Med. Jour., 1922, i., 297.

But great as have been the triumphs of prostatectomy in relieving what before the days of FREYER, MCGILL, and FULLER was an incurable condition, a dispassionate review of the results of prostatic surgery shows that operative treatment is associated with a mortality that is far from negligible. For this reason it is important that we should not neglect the investigation of any form of treatment that carries with it a smaller risk than that of prostatectomy; and since organotherapy has so far failed to give results the claims of electrotherapy should receive sympathetic hearing. Generally speaking, it may be applied in one of two ways: either in the form of diathermy, radiation, galvanism, static electricity, or X rays applied to the prostate as a whole, or in the form of surgical diathermy for the purpose of removing portions of the obstructing prostate, and so restoring the patient's capacity to empty his bladder. Both methods are of value provided discrimination is exercised in selecting suitable cases; it is, indeed, on account of faulty selection that electrotherapy has in many quarters failed to gain the recognition that it merits. Attempts have been made to deal by electrical means with cases that could only be satisfactorily treated by prostatectomy, and conversely patients who might conceivably have been relieved by less drastic measures have been subjected to operation. The surgeon alone is capable of recognising the type of prostatic obstruction from which the patient is suffering, and of gauging accurately the probable effect of the measures to be adopted. Progress in non-operative treatment will need the closest collaboration between surgeon and electrotherapist. Only then will it be possible to discover what is the scope and what the limitations of electrotherapy in the treatment of prostatic conditions.

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PUERPERAL INFECTION AND DIETARY DEFICIENCIES.

IN 1929 Prof. EDWARD MELLANBY and Dr. H. N. GREEN reported observations on the treatment of puerperal septicæmia with preparations containing vitamin A. Their results were encouraging. At the hospital where the investigation was conducted there had been 22 cases of puerperal septicæmia during the previous two years, of which all but two proved fatal. From the time when vitamin A was given there were nine cases, and recovery took place in eight of them.[1] The experience of others, however, does not seem to have been so favourable, and the rationale of using vitamin A therapeutically has been criticised. A. H. G. BURTON and A. R. BALMAIN,[2] who examined the influence of vitamin A on antitoxic immunity as demonstrated by Dick tests, held that it was doubtful whether the effects which had been described as following its administration for the purpose of treatment were not a coincidence. W. CRAMER[3] supported this view by saying that "there is no evidence . . . that vitamin A can cure infections once the barrier of the mucous membranes has been passed, or that it can prevent or cure those infections which enter by the blood stream or by the subcutaneous tissues, as they do, for instance, in puerperal septicæmia." BURTON and BALMAIN found it hard to see on what grounds it can be held that the ingestion of a vitamin or any food factor can effect a prophylactic action without the stimulus provided by a specific toxin; and in fact they gained no good results by administering Radiostoleum (vitamins A and D) to 52 women during pregnancy. They admitted, however, that there is reason to believe that a deficiency of vitamin A in the diet predisposes to changes in the epithelial linings of mucous tracts, and CRAMER stated that an adequate supply of vitamin A is a powerful physiological prophylactic against infections entering by the mucous membranes.

In their latest paper Prof. MELLANBY, Dr. GREEN, and their co-workers, Dr. D. PINDAR and Mr. G. DAVIS,[4] refer to evidence that women during pregnancy are specially liable to develop

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[2] THE LANCET, 1931, i., 957.

[1] Brit. Med. Jour., 1930, i., 677.

[2] THE LANCET, 1930, i., 1065.

[3] Ibid., p. 1153.

[4] Brit. Med. Jour., Oct. 3rd, p. 595.

Chinese transactions are based. The prices for drugs from the United States, among which are such well-known commodities as cascara sagrada, senega, and podophyllin, will cost the British importer about 25 per cent. more should the dollar exchange remain approximately at its present level. Gentian, colchicum, belladonna leaves and root, and liquorice root, among many others, reach us from Central Europe, and their prices will vary according to the rate of exchange of the country of origin. Chamomiles come from France and Belgium and are already 25 per cent. dearer. Scammony from the Eastern Mediterranean, stramonium from Germany and Hungary, and tragacanth from Persia are all dearer. Cinchona from the Dutch East Indies, valerian, whether it comes from Belgium or Japan, have also mounted up in price, but these named drugs are but a few out of hundreds for which the British public will have to pay more. Moreover, prices will not be stable but will vary according to the value of the pound in the countries from which our supplies are obtained.

The main source of supply of many of our fine chemicals and synthetic products is Germany, and so long as that country remains on the gold standard, and the pound is at a heavy discount there, an almost interminable list of drugs will be substantially dearer. Quotations for shipment from Germany are now based on the pre-crisis rate of 4·86 dollars to the pound, so that for the time being the importer's bill for these items has gone up by about 5*s.* in every pound; in other words, the importer has to pay about 20*s.* for 16*s.* worth of goods. France and Switzerland are also very important sources of supply of fine chemicals and so-called "new remedies," and the cost of these has gone up to a like extent. Much the same applies to essential oils from Sicily, America, [illegible] Japan. It may be that if the pound remains in disgrace long enough our own manufacturers of fine chemicals, sheltered by the protection afforded by the tariff-effect of the discounted pound, will be stimulated to produce in this country some of those commonly prescribed synthetic remedies which are not made here at present. It may also happen that our home manufacturers will be enabled to increase their output of products which are already made here in commercial quantities and sold in competition with Continental producers. To mention only one range of drugs, German makers of bromides have been endeavouring to embarrass British makers by the process of underselling for a long time past; up to the time of the monetary crisis they had not succeeded, and their efforts in that direction will have to be postponed until the pound looks the mark in the face again. The extent to which hospital drug
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THE OBSTRUCTING PROSTATE.

FAILURE to recognise the fact that different pathological conditions are grouped under the convenient heading of senile enlargement of the prostate has led to much confusion, more especially in articles dealing with results obtained from various methods of treatment. Even the term enlargement is a misnomer, for in many cases of obstruction the prostate is normal in size. In others, a local enlargement may have occurred, but it can only be discovered with the help of a cystoscope by one specially skilled in this form of examination. The troubles that arise from the prostate in the later years of life are not due to a single pathological entity but to a variety of changes affecting that gland, and the causes which are responsible for these changes are imperfectly understood. Whilst it is generally agreed that the small hard prostate often found in cases of obstruction is the result of chronic inflammation, no certain explanation has yet been given of the commoner soft and definitely enlarged gland. Perhaps the most commonly accepted view is that this type of enlargement is adenomatous in character, although against this view is the fact that as a general rule adenoma appears at a period of functional activity rather than in the later years of life when this activity is on the wane. Formerly CIECHANOWSKY's view that the glandular increase is apparent rather than real, and due to dilatation of acini following inflammation round the ducts, found considerable favour, but of late this inflammatory explanation of enlargement has become less popular. Indeed, the only serious rival to the theory of adenoma is that advocated by Mr. KENNETH WALKER in his Hunterian lecture[1]—namely, that the enlargement is in the nature of a fibro-epithelial degeneration analogous to the condition which may be found in the female breast at the time of the menopause. According to this theory the enlarged prostate is the site of a particular form of degeneration occurring at the male climacteric and implicating the whole of the genital tract.

Where the pathology is in doubt but little progress can be made in ætiology and prevention. If the theory of adenoma be correct, no preventive treatment can be formulated until more is known of the causation of new growths in general. If, on the other hand, the enlarged prostate is an involutionary process endocrine therapy, provided that sufficiently potent extracts are available, should have some effect in preventing the onset of enlargement. It must be admitted that none of the theories of causation explains why one man who has reached the age of 60 should have developed an enlargement of his prostate, whilst three of his fellows who have followed a precisely similar manner of life have escaped. But although enlightenment as to causation and the hope
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it. Med. Jour., 1922, i., 297.

ANNOTATIONS

EPSOM SCHOOL SANATORIUM.

On Saturday last Lord Dawson of Penn opened the new sanatorium at Epsom College. The gathering was a large one, and included medical officers and administrators of public schools, naturally curious to see what Epsom, with its 60 per cent. of doctors' sons, does for their hygienic environment. Lord Dawson described the sanatorium which he opened as a middle course between idealism and efficiency, but a careful comparison of the specifications and plans which appeared in our columns on Dec. 3rd, 1927 (p. 1184), with the lay-out inspected on Saturday, suggests that economy has been practised only at the expense of what could well be spared. In his memorandum on the accommodation for the sick provided by certain public schools for boys in England, published[1] three years ago, Capt. W. Dalrymple-Champneys, after noting the provision existing at the schools he visited, set out certain requirements which have been followed closely at Epsom. He gave the standards per bed as 100 square feet of floor space, 1000 cubic feet of effective air space, and 800 feet of wall space; each of these standards has been exceeded at Epsom with the exception of the wall space in the smaller wards, which may be only a trifling falling away from hygienic grace, in view of the abundant window space and ideal exposure to sun and air of the whole building. He suggested that the total number of beds should not be less than 18 per cent. of the boy population; at Epsom, which has well over 400 boys, 50 beds have been provided in the sanatorium—for the sanatorium makes provision under one roof for the separate care of infectious and non-infectious cases, and also for observation, convalescence, and most of the out-patients. Illness is excluded in principle from the ordinary school life, and there will be no sign of it in any of the houses except for the attendance of a nurse at a specified hour at two spots for simple out-patient treatment.

The sanatorium, as now opened, combines a number of hygienic aims which may be briefly set out. In the first place it can be employed by sections, each of which can be isolated in respect of heating, lighting, and water-supply by a simple valve arrangement. Then the building is so arranged as to be able to deal at one and the same time with ordinary ailments and accidents, as well as with four distinct simultaneous infections of school life, such as chicken-pox, mumps, measles, and influenza. Graver infections, such as small-pox, diphtheria, and enteric fever, would as heretofore be sent away to special hospitals. Administrative arrangements have been simplified so that the normal running can be done by a small staff, whilst affording instant accommodation for an increased staff in case of epidemics or emergencies. Provision is made for indoor recreation for convalescents. There are open-air balconies and cheerful solaria for patients that require them, and there is proper accommodation for unmarried masters when sick. Finally, there is an X ray room to which every injury is sent whether there is suspicion of a fracture or not—many partial fractures have, in the past, been thus revealed—and a theatre with accessories for whatever minor operative measures may be needed. It may be that in the past, as stated in the preface to the memorandum above mentioned, the physical welfare of boys at our public schools has been too often a secondary consideration, but the slur has certainly now been redeemed at Epsom College.

But even on Saturday no one was allowed to think of the sanatorium but as one side of the efforts at Epsom to live healthily. The well-organised system of physical education, said Lord Dawson, is an admission that the training of the body has an importance equal to that of the training of the mind. Physical education properly conceived—not the old mechanical soul-destroying drill—is also an effective means of training, on the one hand, mind and character in initiative, leadership, power of expression, and on the other, the body to beauty of form, resilience in movement, and that perfection of function of lungs and skin which gives endurance and adaptation to changing climate and resistance against disease. Physical education in too many schools tumbles along; some headmasters, he added, have not even begun to understand it. Instead of a few odd hours grudgingly conceded, physical culture should occupy a definite place, and it then would enhance the value and enjoyment of games and sports. Consideration of physical education led Lord Dawson to suggest that the duties of medical officers of schools should not be limited to the care of boys who are sick; the doctors should make a study of physical education and responsibly co-operate in its purpose. This does not mean that they should participate, still less interfere in its day-to-day performance, but they should study physical education in being and its reactions on different boys. In this way the trained eye would detect in an early stage and without formal examination defects of frame and function at a stage when they could be easily rectified. For the time, he said, to study a boy is in movement; only then are to be detected the defects of shape or expansion of chest, the defects of mouth and nose breathing, the commencing asymmetry of frame, the early flat foot, and those cases in which exercises produce fatigue rather than vigour, and pallor rather than glow. Thus the educational and the remedial would be correlated. It is tragic, he concluded, to think how often doctors see defects which could have been rectified and which are a handicap to life's fulfilment.

SUBSTANCES EFFECTIVE IN PERNICIOUS ANÆMIA.

The practical value of the parenteral administration of liver extracts, which we discussed on Sept. 12th, receives further confirmation in our columns to-day. Dr. J. F. Wilkinson describes satisfactory results in treating severe cases of pernicious anæmia with a preparation free from blood-pressure reducing substances, though also a derivative of the original G fraction of Cohn and Minot. As with the extracts used by the Boston group[1] that employed by Wilkinson, now on the market as Hepatex, is effective in smaller amounts than if given by mouth.

Knowledge of the possible chemical constitution of the active principle in liver is also advancing. West and Howe[2] amplifying their earlier work with H. D. Dakin, now report that a quinine salt of a tribasic acid containing the pyrrolidine ring, when injected intravenously into patients with pernicious anæmia, gives a mild reticulocytic response. The structure tentatively adopted for this acid is in close relationship to the pyrrole derivatives that have been isolated from hæmin, while nearly related porphyrins occur in other respiratory pigments. Arguing, therefore, that the effective principle in liver probably consists of one or more pyrrole precursors which may be utilised by the body in the formation of hæmoglobin and other respiratory ferments, West and Howe make the somewhat revolutionary suggestion that pigment metabolism rather than red-cell stroma formation is defective in the pernicious anæmia syndrome. They also suggest that, since the respiration ferments from various sources appear to be clearly allied in structure, the effective principle in liver may be a percursor of respiration ferments essential for cellular respiration, and that lack of such a ferment is responsible not only for the blood changes, but also for the cord lesions. They themselves, however, admit that the amount of hæmoglobin appearing in response to a given dose of effective material is greater than would be expected if one were dealing with a simple pyrrole precursor. Further doses as large as 800 mg. given intravenously only gave a mild reticulocytic response, while Cohn, McMeekin, and Minot[3] have reported maximum responses with 480 mg. of an admittedly impure fraction. If hæmoglobin formation is alone at fault in the pernicious anæmia syndrome, why is the colour-index always high, signifying an ample hæmoglobin content of the cells, and why is the body loaded with pigments in the acute stage? Again, why is there such an extremely characteristic and constant structural change in the red cells as evidenced by the megaloblastic bone-marrow found in those anæmias which respond to liver, and not in those that are dependent upon faulty hæmoglobin production as idiopathic microcytic anæmia?

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[1] Ministry of Health, 1928. H.M. Stationery Office. Pp. 35. 1s.

[1] Strauss, M. B., Taylor, F. H. L., and Castle, W. B.: Jour. Amer. Med. Assoc., August 1st, p. 313.

[2] West, R., and Howe, M.: Ibid, Sept. 5th, p. 685.

It is clear that the exact interpretation of these preliminary results must await a more prolonged study of the adequacy of the materials isolated from liver and ultimately their synthesis.

DYNAMIC RETINOSCOPY.

DYNAMIC retinoscopy is the name given to a method little known in this country but which apparently has some vogue in the United States. Ordinary or "static" retinoscopy depends for its accuracy on relaxation of the accommodation on the part of the patient, either voluntarily, or involuntarily after the use of a mydriatic. The new method involves voluntary accommodation to a point equal in distance from the patient's eye to that of the (plane) mirror by which he is being tested. This is achieved by means of figures or letters attached to the mirror in such a way that the patient, in fixing them, directs his eye only slightly away from the line of light reflected into it. As a preliminary it is necessary to refract the eyes of the patient in the ordinary way with accommodation relaxed, and the sole object of the dynamic method is to determine what amount of plus glass is necessary to add to the patient's distant correction in order to give him comfortable vision at reading or any other distance. This cannot be done by rule of thumb, inasmuch as the amount of accommodation to be relieved by an extra plus glass depends not only on the degree to which the patient's crystalline lenses are sclerosed in accordance with his age, but also on the condition of his muscle balance. Exophoria causes a certain amount of latent relative accommodation to become manifest, and esophoria does the reverse. The strength of a presbyopic glass required by an exophoric patient will therefore be more than that required by an orthophoric, and that by an esophoric patient less. The greater part of a brochure, recently published by Dr. M. Dobson,[1] is occupied by an explanation of this relationship and its implications. What is not completely explained is how, with a small pupil—necessarily made smaller by the reflex action of light and the synergic action of accommodation—greater accuracy can be obtained, even with a "pointolite" lamp than by the older method. Dynamic retinoscopy, says the author, is the only known method of measuring and correcting presbyopia objectively, and is perhaps "most useful in the refraction of hypermetropic eyes in non-presbyopic cases, when both manifest and latent hypermetropia is present, with or without ciliary spasm." It goes without saying that in all such cases, and still more in the case of myopes, the relationships of accommodation, convergence, and muscle balance must be taken into account, but it will need more convincing arguments than those contained in this book to induce many ophthalmic surgeons to substitute this new method for their well tried old ones.

A STREPTOCOCCAL CARRIER.

THE theory that many cases of puerperal fever are due to infection by organisms incubated in the throat of a person in contact with the mother is rapidly gaining ground. It is, however, difficult to produce unequivocal evidence of an epidemic caused by a single organism in a large lying-in hospital, where the other possible sources of infection are so many. Drs. Paul Courmont and Paul Sédallian report[2] an isolated epidemic in which they claim that the carrier of the infection was established beyond reasonable doubt and the bacteriological evidence was practically conclusive. A midwife complained of lumbar pain on May 12th and consulted a doctor, who saw no reason why she should cease work. On May 27th, feeling no better, she consulted a second doctor, who gave the same opinion. On June 2nd she had a rise of temperature to 104° F., diffuse arthralgia and symptoms of septic throat; the symptoms lasted for three days. At the end of this time she developed a scarlatiniform eruption which, however, was not diagnosed as scarlet fever. By June 9th she had completely recovered. Between May 24th and June 11th she attended 11 confinements in all: six of the mothers developed puerperal fever and one died. The nurse, being very concerned at the successive development of so many cases of infection, had exercised special care. On June 12th a bacteriologist of known competence recovered hæmolytic streptococci from a culture of a throat swab, and swabs taken on June 17th and July 2nd also yielded almost pure cultures. The strain thus obtained was compared with a strain cultured from one of the cases of puerperal infection. Both were strongly hæmolytic and had the cultural characteristics of streptococci. The throat strain was virulent in guinea-pigs, a fact which shows its capacity for producing septicæmia. The two strains had identical actions on carbohydrates, fermenting all the usual sugars and failing to ferment arbutine, esculine, amygdaline, and mannite. Rabbits prepared with each culture gave cross-agglutinating sera. Considering the great number of different known streptococci, the authors claim that this similarity amounts practically to identification. Previous work has shown them, they say, that streptococci isolated from infected patients in the same hospital over a period of two years were all of the same bacteriological type, and that streptococci taken from women *confined outside the hospital were of different types.* They are doing further work on the bacteriology of the present epidemic. This report undoubtedly provides evidence of considerable weight for the droplet ætiology.

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[3] Cohn, E. J., McMeekin, T. L., and Minot, G. R.: Trans. Assoc. Amer. Phys., 1930, xlv., 343.

[1] Dynamic Retinoscopy. By Margaret Dobson, M.D., Ophthalmic Surgeon to the New Sussex Hospital for Women, Brighton. London: Humphrey Milford, Oxford University Press. 1931. Pp. 56. 7*s.* 6*d.*

[2] Presse Méd., Sept. 9th, p. 1325.

THE HISTORY OF INDUSTRIAL MEDICINE.

THE activities of animal life are a blessing whence *originate* health and, for *mind-possessing man,* happiness. But man, while his intelligence was dimly dawning, converted this blessing into a curse; and was continuing so to do when historical times open. Thence onward the story of occupational diseases and of forced labour, commencing with early Egyptian records, has just been told in a review contributed by Dr. L. Carozzi to the encyclopædia compiled by the International Labour Office at Geneva.[1] The copper industry is an instance which arose about 5300 B.C., when conquered women and children were the first miners, goaded on by soldiers to their labours. An early papyrus is quoted :

> "I have never seen a blacksmith acting as ambassador or a foundry worker sent on a mission, but what I have seen is the metal worker at his work ; he is grilled at the mouth of the furnace. The mason, exposed to all weathers and all risks, builds without clothing. His arms are worn out with work, his food is mixed up with dirt and rubbish ; he bites his nails, for he has no other food. The barber breaks his arms to fill his stomach. The weaver engaged in home work is worse off in the house than the women ; doubled up with his knees drawn up to his stomach, he cannot breathe. The laundryman on the quays is the neighbour of crocodiles. The dyeworker stinks of fish spawn ; his eyes are tired, his hand works unceasingly, and as he spends his time in cutting up rags he has a horror of clothing."

The gigantic masterpieces of architecture which stand to-day on the banks of the Nile are evidence of the cruel sacrifices demanded of human tools by the Pharaohs. Dr. Carozzi recalls that Hippocrates recognised lead poisoning, and Plato noted how an artisan's body may be deformed by the exercise of his profession. He has discovered a pamphlet, written by Ulrich Ellembog in 1743, insisting on the *toxic action of carbon monoxide, lead, mercury,* and other metals. By a curious misprint this pamphlet is stated to have been printed for the first time in 1524. A short sketch is given of the life and work of Ramazzini. This remarkable man recognised the influence of the way life is lived upon the way death has to be faced ; he was a scholar, a physicist, a geologist, a hydrologist, as well as a doctor, and above all a hygienist ; a maxim he cites is *longe præstantius est præservare quam curare.* He added to the famous questionaire of Hippocrates the pertinent query "what is your occupation ?" He lived to a ripe old age, dying at last of apoplexy on his way to lecture at the University of Padua. Dr. Carozzi goes on to relate how, with the industrial development which saw its birth in Great Britain, the existence of ill-health and disease arising from occupation became *recognised*, and was the cause for factory legislation, which was the first effort at a public health code. He closes with pointing out the unexpected influence which the world war exerted upon the development of industrial hygiene, when the health of the munition worker became as important to the preservation of the state as the activities of the fighting forces.

OSLER

IN two large volumes Dr. Harvey Cushing has written with eloquence, breadth, and detail, the life of William Osler, but because that biography was so large we find a brief appreciation of the great physician welcome, and we have no doubt that many readers will share this sentiment. Miss Reid[1] was a close friend of Osler and his family, and this has enabled her to obtain new material as well as some interesting illustrations, among others a charming representation of Osler's centenarian mother. A vivid and sympathetic history is here of one who combined the closest spirit of scientific inquiry with the openest appreciation of human life in general. The reason of Osler's successes, as physician, as teacher, as author, and as man of the world are all made clear, and we can appreciate how often the unexpectedness of his words or his attitudes lent them their great significance. He was able to illustrate abstruse doctrines with the homeliest examples, to act as a philosopher while joking as a schoolboy ; his reading was enormous, and his antiquarian interests profound, but he never dropped into pedantry ; he resolutely eschewed sentiment, and was one of the most affectionate of men. Although at the end of Osler's life he was so stricken by the loss during the war of his only son, he tried to staunch the wound in his heart by work, and in all the waste and misery of the war he understood the good that could be rescued if every readjustment were an advance towards permanent peace. He has been spared the miserable medley of disorder and futility which has in so many fields taken the place of readjustment, but it is probable that if a few such as he had been among the international workers of the last decade the world would present a different picture. For Osler had the equipment of the *true international, the brains needed to follow,* and the power of sympathy needed to appreciate the aspirations of his fellow men, whatever their geographical home.

TUBERCLE IN INDIAN CITIES.

Dr. M. Kesava Pai, superintendent of the Madras tuberculosis hospital, estimates[2] that there are at *least 30,000 persons suffering from active tuberculosis* in Madras. Roughly he thinks there must be a case to every other house in the city, and the picture he draws of the dirty, ill-ventilated, and overcrowded tenements in which they exist is sufficiently impressive. The construction of a new tuberculosis hospital is under consideration and its location has given rise to much controversy. There is considerable opposition to the proposal to build within city limits. That section of public opinion which fears infection and urges that it should be built in rural surroundings appears likely to prevail. Dr. Pai, on the other hand, argues that it would be of more use if centrally situated. In the absence of adequate provision of tuberculosis dispensaries there may be something to say for this point of view. Meanwhile any controversy of this kind sinks into insignificance when *contrasted* with the importance of preventive propaganda. Tuberculosis has been a scourge of India from time immemorial. The medical literature of ancient India is full of references to this disease. But whereas in progressive communities of Europe and America it is on the downward trend, and likely to become still less prevalent, in the crowded cities, and even the villages of India, it is still on the increase, and until the habits of the people alter there is every prospect of further spread. There are two remarkable facts which, amongst others, should attract the attention of Indian reformers to the question of ventilation particularly. It is well known that cattle in the warmer parts of the peninsula, where the most they have in the way of housing is a roof without walls, hardly ever suffer from tuberculosis, though many of them are under-fed and neglected; and Europeans, who mostly live in large airy houses, with windows and doors thrown wide open, are similarly almost immune. An open-the-window campaign, if it met with general success, would do more to free India of tuberculosis than all other measures taken together, and would improve health in other respects also.

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[1] Occupation and Health: Industrial Diseases. Historical Review (Brochure No. 254).

[1] The Great Physician: A life of Sir William Osler. By Edith Gittings Reid. London, New York, and Toronto. Oxford University Press. 1931. Pp. 299. 12s. 6d.

[2] The Antiseptic, June, 1931.

MEDICINE AND OTHER SCIENCES.

THIS year the seasonable pronouncements on the modern medical outlook in connexion with the opening of the autumn session at the medical schools provided, as usual, stimulating and provocative material. Sir Farquhar Buzzard dealt not directly with the curriculum but with the organisation which defines it, finding little to criticise and much to commend; Sir George Newman considered how best the student's training may be coloured by "the preventive principle and the preventive trend"; while Prof. H. R. Dean concerned himself chiefly with the relation of medicine to the sciences often called ancillary, which he prefers to call her daughter sciences. He chides them gently for affecting a superiority to their mother because she is proud to do useful work, while they pursue knowledge for its own sake. His remedy is that not unknown in domestic life—to use the proceeds of their labour to support the joint household. He would certainly make every effort to keep them in close touch with each other and with medicine. Dr. A. E. Cohn,[1] of the Rockefeller Hospital, New York, favours development on rather different lines. He accepts the view that medicine is largely the mother of the sciences, but holds that now that she has shed chemistry and physics and biology, she ought to get rid of therapeutics and hygiene, leaving herself free to study the processes and arrangements of diseased life without necessarily having any idea of consequent practical action. A diseased person, in short, is worth studying as a biological phenomenon, just as a healthy earthworm is worth investigation. Those who think that our medical students are already taught in a shockingly unpractical manner will probably read Dr. Cohn with horror, if they read him at all. A little reflection may lead them to a more sympathetic view. Practical advance comes sometimes from direct attack, but more often through some side-line, and it is always based on a great groundwork of abstract knowledge. For all our knowledge of anatomy, physiology, and chemistry, our understanding of diseases as such, is very imperfect: this may well be because, as Dr. Cohn argues, we have looked on diseases, as resultants and not as things in themselves. What applied medicine needs to augment its capacity to prevent and cure is a better groundwork of abstract medicine, and it is this fundament which Dr. Cohn urges us to study. With this advice Prof. Dean would certainly not disagree, nor would he disagree that the proper concern of medicine is the study of the phenomena of disease as they are manifest in affected persons. But when Dr. Cohn proceeds to argue that Laennec's dictum that the aim of medicine is the cure of disease is no longer true, he will find few followers. Possibly a slight but important adjustment of nomenclature would make his views more generally acceptable. The demands which Dr. Cohn makes for the science of medicine are exactly those which others make for the science of pathology.

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[1] Medicine, Science and Art, by A. E. Cohn, Chicago. University Press. 1931. Pp. 212. $4.

THE DR. ALFRED COX TESTIMONIAL FUND.

As we announced recently, Dr. Alfred Cox will retire from the post of Medical Secretary to the British Medical Association, which he has so long occupied and with such distinction, at the centenary meeting of the Association in London next year. Dr. Cox has held the position, including three years duty as Deputy Medical Secretary, for 25 years, and has discharged the heavy duties not only with unfailing devotion to the Association but to the substantial benefit of the whole medical profession. At the recent meeting of the Association at Eastbourne it was decided that a Fund should be raised to provide a permanent memorial of the man and his work. It was decided that the memorial should take the shape of a portrait to be placed in the B.M.A. House, and a substantial personal gift to Dr. Cox himself. This gift will take the form of a cheque, accompanied by a volume recording the names of the subscribers to the Fund. An appeal has now been made to the members of the B.M.A. for subscriptions "not exceeding 10s. per member," and a prompt response is requested, having regard to the time that will be necessarily occupied in the preparation of the book of subscribers. Replicas of the presentation portrait will be available at prices according to the style requested. All correspondence relating to the department of the hon. treasurer of the Fund should be addressed to Mr. N. Bishop Harman, at the B.M.A. House, Tavistock-square, London, W.C. Dr. E. Rowland Fothergill is acting as hon. secretary to the General Committee.

THE Council of the Royal College of Physicians of London have decided that it would be inopportune to hold the annual Harveian banquet arranged for Oct. 19th in this time of economic stress and political uncertainty. Dr. Hutchinson's oration will be delivered, as usual, at 4 P.M.

NATIONAL INSTITUTE OF CHILD PSYCHOLOGY.—A new foundation, established at 10, Warwick-crescent, London, W. 2, has arisen out of the "Children's Clinic" which was first started in Clarendon-road, Kensington. Its activities include the provision of a one-year training course for workers with difficult, nervous, and delinquent children. Part of this course is to be taken at the University of London and part of it at the institute, the honorary director of which is Dr. Margaret Lowenfeld. Shorter courses are to be available for medical men and women. The subjects to be covered include anatomy, physiology, psychology and comparative psychology, psycho-pathology and mental hygiene, growth, common myth and fairy tale in relation to work done by children, principles of rhythmic work with maladjusted children, the designing and keeping of records, and practical work in the playroom. A considerable period of time will be devoted to the study of complete, carefully-analysed records of children attending the clinic. Examinations will be held and certificates granted to successful candidates.

MODERN TECHNIQUE IN TREATMENT

A Series of Special Articles, contributed by invitation.

CCCXIX.

THE TREATMENT OF ADVANCED PULMONARY TUBERCULOSIS.

PART II.*

Insomnia.

It is of paramount importance to determine the cause of sleeplessness—whether pain, cough, or dyspnœa—and to treat it. Excluding these special causes, it is surprising how often sleep can be induced by the ordinary nursing methods of hot drinks and tepid sponging last thing at night. Bromide and chloral āā *grs.* xx. will usually succeed where these methods fail, and in my experience they are the most useful of the mild hypnotics and can be reinforced if necessary by another drug, such as paraldehyde ʒi.-ii. as a repeat dose. It is wise to give a hot drink at night as a routine, as it has the additional advantage of stimulating expectoration of any secretions in the tubes, leaving the patient comparatively free from cough during the rest of the night. For the worrying *introspective* patient no drug equals Dover's powder grs. x., which in single or repeated doses rarely fails to induce sleep.

When insomnia is intractable with general or local pains opiates should not be withheld: nepenthe ♏xx.-xxx. (an excellent drug), morphia gr. 1/4 or heroin gr. 1/6 are useful; heroin gr. 1/6 with hyoscine HBr gr. 1/100 is a good combination and is more certain in action than the rest. On the whole, if hypnotics are used it is wise to push them until sleep is induced, otherwise the patient has one more poison to deal with, without any of its benefits. In patients with profuse expectoration, cough must inevitably disturb sleep; hot drinks, helped by doses of some form of linctus, either tinct. camph. co., oxymel scillæ, syr. tolu, āā ♏xx. or diamorph. HCl gr. 1/6, terpene hydrate gr. 1/2, syr. ad ʒi. will give some rest during the night.

Pain in the Chest.

Pain in the chest is perhaps the most common complaint. It varies from the dull persistent ache or sharper pain *on coughing* (due presumably to underlying disease or muscle spasm), to the knife-like stab of pleurisy, or the sudden tearing pain of a pneumothorax. For the bronchitic complaining of soreness in the midline of the chest, especially on coughing, the application of liniments and the use of benzoin inhalations are usually sufficient. For the local pain of underlying disease the simplest remedies are often successful. Rubbing the chest with liniments or, if *they are of no avail*, painting with tinct. iodi mitis (or tinct. iodi fortis if the skin is not a sensitive one) can usually be relied upon to relieve the pain. Should it continue, however, a mustard leaf, a belladona plaster, or a kaolin poultice, can be used with a fair assurance of success. Pleurisy can be treated along the usual lines, but with extensive underlying disease and with a limited respiratory area it is wise to avoid extensive strapping owing to the increased dyspnœa it entails. The symptomatology of spontaneous pneumothorax in chronic tuberculosis is interesting. In the majority of my cases it was only discovered when the chest was examined for some slight pain or as a routine. The classical signs and symptoms arise only in the minority of patients. We have *a patient at the moment* who, in spite of the disability of an extensive pneumothorax, can work at his bedside industry with perfect comfort. Should symptoms be severe morphia is necessary to ease the pain and anxiety. If there is collapse a stimulant is of course indicated. With a gradually increasing escape of air into the pleural cavity, strapping or puncturing the chest may be necessary.

Ulceration of the Intestines.

The terminal enteritis often associated with advanced tuberculosis of the lungs is painful, exhausting and depressing, and therefore needs instant *sedative treatment. The reduction of diet, to milk if* need be, is not a serious matter, since loss of appetite is usually a prominent symptom by the time that diarrhœa has occurred. Slight increase of foodstuffs which have little residue can be given as the patient demands more food if the condition of the intestines allow. Warm applications to the abdomen in the form of hot bottles definitely mitigate pain and promote [illegible]. For ulceration of the small intestine bismuth mixtures can be tried first either alone or combined with Dover's powder, tinct. chloroformi et morphinæ co. 1914 ♏x. or tinct. opii ♏x. Mineral astringents combined with opium can be tried, but the best mixture is mist. cretæ co. B.P.C. ʒi. with or without tinct. opii in ♏v. doses every four hours during the night and day. The dosage of opium can be regulated according to the severity of the diarrhœa. Even if it is pushed to the point of constipation there are enemas at hand to relieve. For the large intestines, starch and opium enemata combined, if need be, with opium by the mouth gives the most satisfactory result. These *measures* are sedative and purely palliative.

It is worth noting that in New York a mixture of cod-liver oil and tomato juice has been used in the treatment of both early and late cases of intestinal tuberculosis complicating phthisis. It is served ice cold after meals in the proportion of 3 oz. of juice to ½ oz. of oil; it is worthy of trial.

Digestive Disorders.

The question of appetite needs no comment, except the obvious one that the food should be as good and as palatably cooked and served as possible. Every passing fancy of the appetite is, of course, difficult to satisfy in institutions where dietetic limitations are unavoidable. But much can be done by a resourceful and enterprising staff to meet the various tastes half-way. This and a timely use of some mixture such as liq. strych. hydrochlor. ♏v., acid hydrochlor. ♏xv., glycerin ♏xxx., inf. gent. co. ad ʒi. will usually improve matters. Dyspepsia and kindred disorders need no special comment. Vomiting, however, is often a prominent trouble, and in so many cases follows severe bouts of coughing. If a sedative *linctus is given* just before or immediately after food, it is possible at least to lessen its frequency and sometimes to stop it altogether. In this and other types of persistent vomiting, tinct. iodi mitis ♏iii.-v. in water is often a considerable help.

Conclusions.

The treatment of these advanced cases of pulmonary tuberculosis is a psychological as well as a physical problem—neglect of the one aspect can only lead

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* Part I. appeared last week.

OPENING OF THE MEDICAL SCHOOLS

LAST week saw the opening of the London medical schools, and at most of them the session began with a formal ceremony. Our last issue contained part of Prof. McIntosh's lecture at Middlesex Hospital on the Infinite Invisible in Medicine. Below we print extracts from two other addresses delivered by medical men. Prof. Dean spoke at King's College Hospital and Sir Farquhar Buzzard at Guy's.

MEDICINE AND OTHER SCIENCES.

BY H. R. DEAN, F.R.C.P.,
PROFESSOR OF PATHOLOGY IN THE UNIVERSITY OF CAMBRIDGE.

Medicine is as old as man and medical science as old as history. Indeed, no science is so old as this our science of medicine, the mother of all branches of natural science. One by one the sciences have been born of mother medicine, chemistry and physics, botany and zoology, anatomy and physiology, and in these later days pathology and bacteriology. In the unending search for better means for the maintenance of health and for the cure of disease new lines of thought and new ways of work have been opened up, new sciences have been born. [illegible] medicine the sciences owe their origin, and it [illegible] fitting that the daughter sciences should, in their turn, make, as they do, contributions to the advancement of medicine.

CLASS CONSCIOUSNESS IN SCIENCE.

In these days when knowledge has multiplied so greatly that no one man may venture to study more than one branch of it, in these days it has become [illegible] fashion to divide the sciences into two groups. [illegible] branches of science in one of these two groups [illegible] called applied or vocational. The branches of science in the other group are styled the pure sciences. Moreover, it is held or implied that the so-called pure sciences are in some way higher or [illegible] intellectual than the so-called applied sciences. Within the group of pure sciences some are [illegible] exact and we must suppose that the sciences that come under this heading must be held [illegible] exact sciences. Of the exact sciences, [illegible] is considered to be the most exact, [illegible] in this science a distinction is drawn [illegible] mathematics and a presumably some[illegible] variety called applied mathematics, [illegible] that science loses caste and becomes [illegible] it is clearly proved to be useful. Now in [illegible] hierarchy of the sciences mathematics claims [illegible] place, and then come the so-called exact sciences physics and chemistry, and then botany and zoology, inexact perhaps, but still pure and finally, after the branches of pure biology are ranked, the branches of applied biology, branches of science openly, avowedly, even shamelessly, concerned with the study of disease such as pathology, or with the study of the cure of disease such as medicine or surgery. In this classification it may be that I have put too much stress on class distinctions which are felt more often than they are expressed. But all, I believe, who have work in any branch of what we call the natural sciences are aware of this class consciousness in science.

Nevertheless, we who work and teach in some branch of medicine may perhaps wonder what these differences may be which distinguish certain sorts of knowledge as exact and purport to divide the sciences into two groups, the pure and the applied. How do the researches of Pasteur fall short of the exact? Is it possible that the discoveries of Lister were contributions to science less pure from the greatness of the benefits which they conferred so directly and so immediately on man? In what respect is abnormal biology less pure than normal biology? How is the study of a sick man less purely scientific than the study of the cockroach in good health? Nor will I admit that the pursuit of knowledge for knowledge sake must be held a higher and a nobler task than the pursuit of knowledge for the sake of the benefit which such knowledge may bring to our fellow men.

THE MOTHER OF ALL SCIENCE.

The medical sciences form one great group within which no branch of science may claim to be purer or more exact than any other. For medicine the mother of all sciences, or of most of them, has need of all her daughters and cannot afford to let the work of any one of them go unheeded. For no investigation of the principles of physics or of chemistry or of any branch of biology can be so aloof or distant from material ends that it may not at any time yield results which may at once revolutionise the practice of medicine. Nor can any man who sets out with no other aim than the improvement of some small practical method for the care of the sick be sure that he will not by his work provide the answer to some fundamental problem greater far than the original object of his search. For science is one and not to be divided, and each man may see as much as he can from his own point of view, but he cannot see it all. So the medical man looks out from his point of view, which is medicine, and sees all other branches of science grouped all round medicine and touching medicine, and hardly, if at all, to be distinguished from medicine. For the medical man all science is medical science, and as the complete physician must know all science, the complete physician does not exist. Yet hard though it is for any one man to gain acquaintance with more than one of our medical sciences, I am convinced that progress may best be made where men with different points of view and with a knowledge of diverse methods will work together. The study of disease is a common interest which unites us all, whether we work in wards or in laboratories. For pathology may be and should be studied in the wards, and medicine and surgery in the laboratory. Nor are the aims of those who study disease with a microscope at all different from those whose methods are called chemical and who work with a test-tube.

AN OBSTACLE RACE.

To-day close association between all the branches of medical science and close coöperation of workers in all the medical sciences is vital for the progress of medicine, and it is very hard to achieve. This problem of correlation confronts everyone of us from the moment when we enter the medical profession. It is the problem alike of the student, the research worker, and of the teacher. The student in the long years of his apprenticeship is confronted by a series of courses in the various branches of the medical sciences, courses which are detailed and specialised and which have become and tend to become more detailed and more specialised. For each branch of medical science is growing rapidly and there is in each subject more to teach and more to learn, and the teachers must be specialists and must devote all their time to their subject. So it happens in some subjects that medical students are taught by teachers who have no knowledge of medicine and consequently no first hand knowledge of the problems which await their pupils in the later stages of their career. And each field of knowledge, in which every student must browse for a little while, is separated from the next by a fence or examination. I do not think that we ought to be surprised if students feel that they have to complete a long cross-country race and surmount several rather tiresome obstacles before they are allowed to enter the promised land of medical practice.

THE UNITY OF MEDICAL SCIENCE.

It is not without significance that we have come to call chemistry, physics, botany, and zoology the preliminary sciences, a term which seems to imply subjects which must be completed and may be forgotten before the study of medicine is commenced. With the growth of science specialisation has become inevitable, and there can be no return to the days when each subject might be in the hands of a teacher competent to combine some branch of laboratory science with the duties of a physician or surgeon to a hospital. In these days teachers of chemistry, physics, botany, and zoology seldom hold medical qualifications, and physiologists, anatomists, and pathologists, the majority of whom have had some medical training and experience, must devote so much time to their own branches of science that they find it hard to keep in close touch with the ever-growing advances of clinical practice. The growth of the medical sciences during the last 100 years has been enormous, and the rate of growth during the last 30 years in nearly all subjects has shown a remarkable acceleration. The students of to-day have better opportunities and facilities for learning their work, especially laboratory work, than their predecessors of 30 years ago. There is more and better organised teaching than there used to be, and students are expected to attain, and, in fact, do attain, a higher standard in each of their too numerous examinations. Alterations in the curriculum there have been, but these alterations have taken the form, as a rule, of an increase in the syllabus and an extension of the hours of study which must be spent on some one subject. The various science departments have competed with one another for the few remaining free hours in the student's week and time for private study has been progressively diminished. Nor has this rivalry in the staking out of claims to the student's time been limited to the laboratory subjects, for the demands of teachers of the more specialised branches of clinical medicine and surgery for compulsory lectures, hours of attendance, and even special examinations, have been and are increasing. We cannot expect the medical student to be a specialist in every branch, and it is getting very difficult for the student to put together all the little bits of the jigsaw puzzle into which the composite but once harmonious picture of medical science has been dissected. If, as I suppose, the students of to-day are more regularly taught and have better opportunities for practical work than students of the past, I wonder why it has been thought necessary to increase the hours of compulsory attendance, the numbers of compulsory lectures, and to enforce, with increased severity, the system by which signatures are required for every course prescribed. "To be signed up" may soon become the student's main objective. Does the necessity for all these signatures lie in the fact that students are expected to attend not only more classes than they would attend without the "sign up" system, but actually more classe than can be attended with profit during the averag span of student life ? One of the most serious change which have taken place has been the handing over o the basic medical sciences of chemistry, physics, an zoology to the public and secondary schools. Th teaching of these subjects in many schools is excellent but the change of place in which instruction in thes subjects is given will make it much more difficul for us to achieve the coördination and correlation o all the many branches of medical science which i badly needed to-day, and is, in fact, long overdue Moreover, few can afford to devote one or often tw years of school life to specialised preparation fo medical examinations, without some loss of th advantages of the broad and general education whic boys destined for other professions are free t obtain.

The time has come for us to put our house in orde and to coördinate, if we can, the various fragmen of the medical curriculum. In the process reconstruction the majority of subjects will nee pruning and some may have to go altogether, for t student is overworked and over-examined. B cutting down or cutting out will not be enough, an we shall not make things very much better until can recapture the ideal of one great medical scien or at least of one great group of medical scienc using different methods, but united and weld together by one common purpose.

THE GENERAL MEDICAL COUNCIL.

By Sir Farquhar Buzzard, Bt., F.R.C.P.,

REGIUS PROFESSOR OF MEDICINE IN THE UNIVERSITY OF OXFO

The Medical Acts do not prohibit the practice medicine by unregistered persons, although the lat are handicapped by not being able to sue for fees a court of law, by being unable to give valid certifica required by any Act of Parliament—such as a de certificate—and by being ineligible for appointme as medical officers in the Services. In other wor any one can practice medicine and surgery, provi that he does not deceive his patients by fals representing that he has qualifications to which has no title, or that he is registered when such is not case.

The General Medical Council has no power to era the name of a practitioner from the Register if adopts any theory in his practice, however cont dictory to the principles in which he has been train For instance, he may practise homœopathy, ost pathy, naturopathy, chiropractic, sanipractic, and the other pathies and practics which, during the sh tenure of their lives, feed on the pathetic credul of mankind. It is quite a good rule, on gene principles ; the only comment one has to make that regard is, that it enables a medical practition who has passed through the orthodox medical trai ing and who has, presumably, acquired a large amou of scientific knowledge, and perhaps a certain degr of critical faculty, to adopt some "pathy" for t purpose of practice, in which he can express his beli That is a practice which is, no doubt, advisable fro the point of view of the public, but, knowing what t public are, knowing their love of something whi is not quite orthodox, it is certainly open abuse.

"COVERING."

The fifth clause in the Council's Warning Notice states :—

> "Any registered medical practitioner who, either by administering anæsthetics or otherwise, assists an unqualified or unregistered person to attend, treat, or perform an operation upon any other person in respect of matters requiring professional discretion or skill, will be liable, on proof of the facts, to have his name erased from the Medical Register."

It is difficult to believe that action by the Council in respect to such cases should lead to the abuse of that body. The law requires that in order to be duly qualified to practise medicine and surgery a practitioner must pass through a long training and severe tests in the form of examinations by recognised licensing bodies. If an unqualified person, without such training and without any scientific knowledge of disease, sets up to cure confiding members of the public he is at liberty to do so. If, on the other hand, he desires for the purpose of curing his patients to render them temporarily unconscious, he needs the services of an anæsthetist.

Now the giving of anæsthetics requires considerable skill and experience on the part of the anæsthetist, and is not free from danger to the patient. The unqualified practitioner naturally seeks for a qualified person to give his anæsthetics in order to escape the serious consequences which would arise if a patient were to die under an anæsthetic administered by an unqualified person. Moreover, the presence of a duly qualified medical practitioner taking part in an unqualified person's treatment conveys a sense of safety to the patient and suggests to the latter that the treatment which is carried out while he is under the influence of the anæsthetic must necessarily be competent and skilful. The registered medical practitioner who is paid by an unqualified person to assist him in his practice, by giving anæsthetics or otherwise, can hardly complain if he finds his name is erased from the Register. As a matter of fact, practitioners who adopt such methods of making their living are not, as a rule, disturbed by finding themselves off the Register. They usually continue such practice and receive a certain amount of adulation from the public who regard them as martyrs to their sense of independence.

ADVERTISING.

The Warning Notice says that :—

> "the practice of advertising, whether directly or indirectly, for the purpose of obtaining patients or promoting his own professional advantage ; or for any such purpose, of procuring or sanctioning or acquiescing in the publication of notices commending or directing attention to the practitioner's professional skill, knowledge, services, or qualifications or depreciating those of others ; or of being associated with or employed by those who procure or sanction such advertising or publication is in the opinion of the Council contrary to the public interest and discreditable to the profession of medicine, and any registered medical practitioner who resorts to any such practice renders himself liable, on proof of the facts, to have his name erased from the Medical Register."

This question of advertising is a very difficult one for the Council to deal with, and there can be little doubt that it occasionally comes to wrong conclusions. When it does so, it has generally erred in the direction of leniency. The Council does not initiate inquiries into the conduct of practitioners in relation to advertising ; it awaits complaints, and if these seem reasonable it orders an inquiry.

Let me give you an imaginary example of the kind of case which the Council has to consider.

Some unknown genius, without the handicap of a medical training, discovers a cure for all diseases of the heart or the stomach. Now cures are more effective in these days if they involve the use of a syringe and a needle, and you can charge more for one hypodermic injection than you can for several bottles of medicine. But hypodermic injections require some small amount of professional skill and the employment of a duly qualified medical practitioner for their administration is impressive and protective. The cure is widely advertised in the press : the usual story—"after trying many doctors without result, &c." Little paragraphs appear in the news columns and quite a crowd of chronic dyspeptics find their way to a second floor room in some well-known street where the duly qualified medical practitioner in a long white coat punctures them at a guinea a time, paid in advance. The case of the practitioner is brought before the Council, who decide that he is guilty of infamous conduct in a professional respect and direct the Registrar to erase his name from the Register. The fat is then in the fire. The paper or papers in which the advertisement had appeared rise up in their indignation and wrath, and roundly abuse the General Medical Council of trades unionism of a hush-hush policy, of preventing the public from recognising and enjoying the benefits of a wonderful discovery, and so on.

I suppose the trouble all arises from the fact that advertisement and advertising are the life-blood of the press. They could not exist without it. It is inconceivable, according to their lights, that there should be anything wrong or infamous in advertising, and what would happen to the public if the whole profession started advertising is a question they have never had time to consider.

It is a question, however, worthy of consideration. Suppose for a moment that we should all be expected, in order to keep ourselves before the public, to have at least one advertisement a week in the papers. Suppose for a moment that coming down to hospital you opened your mid-day special and found "Hurst for Hiccup," or "Fagge for Fractures," staring at you in large type next to "Pink Pills for Pale People." After all it is only a matter of degree, and once the principle of advertisement is admitted there could be no drawing the line. It might lead to more money flowing into the pockets of the profession, but would it benefit the public ? I think the answer is no, and it is for that reason that the General Medical Council have issued a Warning Notice, not because they have adopted a hush-hush policy or wish to damp the enthusiasm of untrained geniuses in their endeavours to cure their fellow creatures.

SLIPPERY HOSPITAL FLOORS.—A second fatal accident has occurred at Tooting Bec Mental Hospital in consequence of the slipperiness of the floors. A female patient slipped as she was getting out of bed, fractured her thigh, and died of hypostatic pneumonia. At the inquest Dr. P. M. Turnbull, the medical superintendent, stated that since a similar happening a short time ago the floors had been made less slippery, and that experiments were still being continued with patent dressings.

HOSPITAL EXTENSIONS.—Last week Alderman G. Marlow Reed, chairman of the Middlesex county council, opened a radiological pavilion, which has cost nearly £20,000, at the North Middlesex County Hospital at Edmonton, and Mrs. Reed opened an extension of the nurses' home which has cost £54,000.—The Mayor of Wandsworth last week opened the new maternity home (20 beds) attached to the Weir Hospital, Balham.—Mr. J. R. Phillips, the hon. consulting surgeon, has officially opened extensions to Bingley Hospital which include a new casualty receiving department.

POST-GRADUATE LECTURES

At several of the London teaching hospitals short courses for old students and other graduates have lately been in progress. The following are summaries or parts of lectures delivered at Charing Cross (Dr. Hamilton, Mr. Daniel, and Mr. Broster), Westminster (Dr. Abrahams), St. Mary's (Mr. Bourne), and Charing Cross (Mr. Bright Banister).

TREATMENT OF BRONCHO-PNEUMONIA IN CHILDHOOD.

(Dr. C. K. J. Hamilton.)

Good nursing is of incalculable value, and every effort should be made to secure a suitable nurse. Excess of relatives is always to be avoided.

Fresh air will do more to save the child's life than any other single factor. Provided the weather is not bitterly cold, the infant may with advantage be nursed on a balcony. In practice, this will seldom be possible, but at least one must insist on really open windows—that is, windows opened as far as they will go, top and bottom. As a rule, the steam tent and kettle are definitely harmful; personally I am never in favour of their use, but they are still recommended by some authorities where there is spasm of the bronchi or much laryngitis. In these cases tinct. benzoini co. (1 drachm to 1 pint) is added. The kettle should anyhow not be used for more than one hour at a time.

The child should be clothed in light warm clothing; over-clothing and too heavy bedclothes are frequent causes of restlessness, and nothing can do more harm to the child than this. The mouth must be attended to frequently both after and between feeds. A simple alkaline lotion, such as sod. bicarb. (1 drachm to 1 pint) is suitable; preparations containing glycerin are to be avoided, because in the long run they tend to make the mouth too dry. The nose must also receive frequent attention; in many cases a chloretone spray will be of value to older children, and will encourage nasal breathing.

Diet.—If the infant is breast-fed every effort should be made to keep it on breast milk. The mother's breasts must be emptied at regular intervals; this is best done by manual expression, but if necessary a breast-pump may be employed. The milk is given to the infant by a spoon or pipette, or where there is great prostration œsophageal feeding may be used with advantage, great care being taken not to give the food too rapidly. With bottle-fed infants the aim should be to supply an easily digested mixture. As in other fevers, fat is not well tolerated, and mixtures such as half cream dried milk should be used. The protein content of the food may be kept fairly high, provided that it is given in a digestible form such as dried milk, condensed milk, acid milk, or peptonised milk. The sugar content should be high. Sugar is best given in the form of glucose or glucose and dextrin. The only danger in a diet with a high sugar content is that it may cause diarrhœa, and in order to obviate this as far as possible a high protein content should be given at the same time. Feeds should be smaller and rather more frequent than usual.

The general principles in the feeding of older children are that the feeds should be small, easily digested, with rather a high carbohydrate and a low fat content. Over-distension of the stomach must be rigidly avoided. Glucose again is very valuable, and older children will often take it as a drink made with lemon or orange juice. Benger's food, barley water, rice water, and jelly are all valuable. Toast, biscuit, and thin bread-and-butter may attract the child, and certainly no easily digested solid food should be refused if asked for. Beef tea, soups, and meat juices have little, if any, nutritive value, and merely serve as media for the administration of othe food—for example, milk soup, or soup with cereal added.

Local applications.—A heavy poultice tied firml round the child's chest will go a long way toward killing it. If any external application is desired small light application of antiphlogistine may b placed on the back of the chest. Under no circumstances should it surround the chest, for that mus necessarily make breathing more difficult.

Drugs.—Expectorants play very little if any par in the treatment of broncho-pneumonia. In th early stages if there is a troublesome dry cough simple alkaline mixture with potass. citrat., an say, syrup of tolu, may be given at the same time frequent warm drinks. In the later stages, whe there is an excess of secretion, belladonna may tried with a view to lessening the secretion (♏ 4 or of the tincture four-hourly to an infant of 5 or months). Belladonna may sometimes make the chil restless, and this must be carefully watched fo since it will do great harm.

If there is restlessness through cough or pai tinct. camph. co. may be of real value. It ca conveniently be given in the form of a simple linct (♏ 4 or 5 every three or four hours for a child 4 months). Morphia and heroin are usually be avoided. A child of 5 years may be given Dove powder grs. 5. Where there is no definite eviden of pain, bromides may be successful in securi quiet sleep. In young infants a dose of ♏ 30–60 brandy will often produce quiet sleep. Wheth digitalis should be given is a matter of dispute; it is going to be given at all it must be started the early stages with a view to protecting the hea ♏ 2 to 3 may be given to an infant three times day. The routine use of the so-called stimulan such as camphor, caffeine, and strychnine has litt to recommend it. With collapse and a falling blo pressure injections of adrenalin may possibly ass in tiding over an emergency.

Every effort must be made to save the heart, a to this end it is very important to secure good sle and quiet. If the restlessness or sleeplessness is d to pain, pulv. ipecac. co. may be tried in older childre and tinct. camp. co. in infants.

The regular use of brandy is a debatable subjec I personally think that its regular administratio may be of some slight value. It may be given in dos of from 10 minims every three to four hours in smal infants to 1 or 2 drachms in older children.

Oxygen is of very definite value, but its employmen must not be postponed until the patient is in extremis It should be bubbled through warm water befo reaching the child. Masks, although theoreticall good, usually cause struggling and are consequentl to be avoided. The introduction of the oxyge into the nasopharynx by means of a thin rubbe catheter passed along the floor of the nose is an excellent method, if it does not annoy the child and make it restless. In practice one has frequently to fall back on the funnel; if this is used it should be large in proportion to the size of the infant's face, and should be held right over the face. Oxygen should be given continuously for about 10 minutes in each half-hour or 15 minutes in the hour.

Bleeding and *leeching* are not often employed these days, but I think that in certain cases, with symptoms of right-sided heart failure, the application of three or four leeches, followed by hot fomentations, may be of definite value.

SLOW LABOUR.

(MR. ALECK BOURNE.)

Slow labour should be measured not in time but in terms of the condition of the mother and child, and the rupture of the membranes. There are three varieties of slow labour which may cause anxiety. The first is that in which the delay is occasioned by the slow initial dilatation of the os; usually the dilatation reaches about two fingers, and then comes to an apparent standstill. In the second variety the os reaches two-thirds or three-quarters of full dilatation before it comes to a stop; and the third variety is that in which full dilatation has been reached for some time, and yet there appears to be no progress.

The causes of delay in these three varieties are fundamentally different. In the first case, where the os is two fingers' dilated, the pains may appear to be either feeble or strong. It is not sufficient to say that early rupture of the membranes alone is responsible for these cases, nor do I believe that a rigid os is the explanation except very rarely. The common cause of the delay is inadequacy of the uterine forces. Graphs taken during labour by the introduction into the uterus of a rubber bag containing water show that normally regular contractions are interspersed with regular periods of relaxation; graphs taken in cases where there is delay of this type show irregular contraction and relaxation without any of the powerful rhythm found in normal labour. Yet the clinical symptoms may be exaggerated, the patient experiencing more pain than the woman in whom the contractions are normal. I believe this may be due to incoördination of the uterine muscle-fibres; in the normal woman the longitudinal fibres contract and expel the baby; in primary uterine inertia the circular fibres contract and the baby is merely squeezed. I do not believe that a rigid os is responsible for the delay; the condition may remain unchanged for hours, and then, perhaps following an enema, the os may dilate rapidly in an hour or two. Such behaviour is not compatible with the conception of a rigid os.

In the patient in whom the os is two-thirds dilated before the delay begins the cause is nearly always the posterior, unrotated position of the head. Where delay of this kind occurs an anæsthetic should be given and an examination should be made, not with the finger but with the whole hand. In the third variety, where the os is fully dilated and progress has ceased, the cause may sometimes be disproportion, but commoner causes are a persistent occipito-posterior position and weak uterine contractions. In actual practice disproportion plays a small part. Persistent occipito-posterior presentations form one of the most important causes of maternal mortality and morbidity, and of fœtal mortality and distress.

In considering treatment it is useful to remember that in the majority of cases no harm can come to mother or child while the membranes are unruptured. The mother may suffer from fatigue but not from physiological exhaustion; it is usually sufficient to give sedatives, and to do nothing more until the rupture of the membranes. Where there is delay after the membranes have ruptured there is danger of infection, of œdema of the os, and compression of the baby. The uterus should be studied by keeping the hand on it for at least ten minutes to decide whether the contractions are normal or weak and irregular. If they are weak it is safe to give 2 or 2½ units of pituitary, and this often has the effect of converting feeble contractions into the steady powerful contractions of normal labour. More than 2½ units of pituitary are dangerous, but that small dose is safe even in the first stage of labour; it should not be given until the behaviour of the uterus has been carefully studied. If the patient is restless and complaining, sedatives may be administered instead. Morphia gr. ¼ may be given, with or without hyoscine gr. 1/100; the hyoscine may be repeated in a dose of gr. 1/200 after an hour. Chloral may also be useful, and sometimes good results are obtained by giving pituitary extract as well as sedatives. An enema may alter the whole picture. In those cases where dilatation really fails to occur the mortality reaches 80 to 90 per cent., but they are extremely rare.

Treatment of a persistent occipito-posterior presentation consists in rotation and the application of forceps. Where signs of pressure are found on examination, such as an œdematous anterior lip of the cervix and a large caput succedaneum, there is probably some disproportion. If this is mild, forceps may effect delivery, but if it is severe craniotomy is usually necessary. When the os is fully dilated before the onset of delay the absence of œdema on examination means that there is no contraction of the pelvis. In all cases of delay four possible causes should be taken into consideration: inadequate pains; a posterior position of the head; pelvic disproportion (rarely); and a rigid os (almost never).

COMMON ANAL AND RECTAL LESIONS.

(MR. P. L. DANIEL.)

The practitioner frequently encounters the patient who complains of discomfort in the rectum. The cause of such discomfort may be anything from cancer to piles, and the diagnosis can nearly always be made by feeling and looking. If the anus is round and puckered instead of an elongated slit, some painful condition is present. Red and sodden rugæ indicate pruritus, and pendulous rugæ indicate piles. A small tender tag of skin posteriorly is usually the so-called sentinel pile of a fissure; if the fissure is low down it can be seen by stretching the anal canal, but if it is higher it can be neither seen nor felt. Fissures may be chronic and hard, or slight and intermittent. Pruritis may be associated with a fistula; the introduction of a probe into the opening will show that the fistula leads towards the anus. Condylomata are nowadays rare, but papillomata are common, especially in dark people, and have no significance. Differentiation must be made between the prolapse of a pile, a polyp, or the rectum itself.

On rectal examination the internal opening of a fistula may be felt, lying between the external sphincter and the levator ani. Introduction of a finger into the anal canal should be painless, so that any complaint of pain should lead the examiner to think of a high fissure. Higher up, the cervix uteri or the prostate can be felt, and either may be mistaken for a tumour by the inexperienced. Above the pile area a polyp may be found, and can be brought down by sweeping the finger round to ensnare the stalk. Piles are not palpable unless thrombosed. Folds of mucous membrane may be felt in the rectum, and these may be so voluminous as to occasion a stenosis; I believe this condition to be a precursor of cancer, and we are nowadays securing good results by injection of the folds. Perianal thrombus, due to strain, is not infrequently seen; it is not a pile, and should be treated after the fourth day by incision and removal of the blood clot.

Strain is also the chief cause of thrombosis of piles, and is usually associated with constipation, which should, of course, be treated. Plenty to drink and mild laxatives such as cascara and senna are useful; paraffin should be used intermittently, since it leads to constipation, and emulsions containing laxatives and paraffin should be avoided; in such a form the dose of neither can be controlled. For inflamed piles suppositories of extract of hamamelis grs. iii., and extract of belladonna gr. $\frac{1}{4}$ are valuable, and should be introduced on waking. Vaseline should never be used to coat the suppository, for it is impermeable and the drugs cannot take effect. Fissures should be treated by arranging that the patient shall defæcate once a day, and by keeping a clean dressing in the fissure. A sentinel pile should be snipped off; the wound heals readily as a rule, and healing will often carry on into the fissure. Operative treatment is required for high fissures.

Prolapsed piles should be replaced and afterwards the patient should be made to lie down for a quarter of an hour with the buttocks elevated. Prolapse of the rectum is extremely difficult to cure, and tends to recur even after extensive excision. The treatment of fistula is best undertaken in hospital, but polypi may be removed under local anæsthesia. Pruritus is best treated by the general practitioner, who must correct constipation and treat the local dermatitis; the patient must wear a dressing in close contact with the anal canal. Excoriations can be touched with silver nitrate, and carbolic and glycerin makes a good lotion for use on a gauze dressing. The injection of Benacol or any thick oil, such as liquid paraffin, often relieves the pain and irritation produced by a fissure for several months, but the patient must be made to wear a dressing all the time, none the less.

Colitis is another condition which the general practitioner is not infrequently called upon to treat. Surgical intervention should be avoided at all costs. Castor oil is a specific remedy, if used judiciously, whether the condition is associated with diarrhœa or constipation; a teaspoonful of the oil should be given in the morning on alternate days. If no action is produced on the first day a gentle enema should be given on the second, consisting of about 30 ounces of an emulsion of olive oil and some bland soap. Not more than eight doses of castor oil should be given altogether, and in some cases good results are obtained by giving emetine hydrochloride, gr. $\frac{1}{4}$ to gr. $\frac{1}{2}$, on alternate days for the next 16 days. Irritants like brown bread should be avoided. Where these methods fail washing out is valuable, and kaolin and paraffin are also useful.

RECENT ADVANCES IN THE TREATMENT OF FRACTURES.

(MR. L. R. BROSTER.)

Since the war the treatment of fractures of the limb bones in this country has largely depended on the use of the Thomas and Robert Jones splints. During a recent visit to Scandinavia I was struck by the complete difference of the methods of treatment used there, and to contrast our methods with theirs may be of interest. The use of plaster is the only form of treatment which we have in common with their surgeons, and it is significant to remember that Sweden and Denmark were non-combatants during the war, and have consequently founded their treatment upon a different experience from ours. Their hospitals are all controlled by the State or commune, and are lavishly built with fine grounds and excellent equipment. All patients are admitted to hospital for treatment, and the hospital staff consists of a professor with four to six assistants under him. Young men entering the medical profession have nothing to work for but a professorship, and these appointments are naturally few. The result is that entries to medicine have dwindled.

In the treatment of fractures so long as the method employed fulfils certain postulates it will be satisfactory. It is necessary, in the first place, to correct the displacement produced by the fracturing force, but this displacement is modified by other factors, such as the pull of the muscles, the weight of the limb, the action of gravity, and the pressure of effusion. One of the actions of the effused blood clot is to distend the deep fascia which encases the muscle mass, with a resultant shortening of the limb. To correct the displacement due to the fracturing force we attempt by manipulation to retrace the force and direction of the violence, and in order to avoid the effects of muscular spasm we give a general anæsthetic to secure relaxation. On the continent, however, they make use of an injection of 2 per cent. novocain to obtain this muscular relaxation; a long needle is used for this purpose, and the injection is made into the blood clot between the fractured ends of the bone. The Swedish surgeons claim that with the disappearance of the pain the limb becomes amenable to reduction. In this country the force of gravity and the weight of the limb are usually met by some method of fixation, either plaster or splint. After reduction, to correct the muscular pull and the shortening due to the tension of the deep fascia over the effusion, we use some method of extension by traction with weights. In Sweden this traction is secured by driving a strong steel wire through the distal part of the fractured bone and fitting this to a calliper attached to a pulley. Such a wire can be passed through the condyles of the femur, through the os calcis, the tibia, the olecranon, or the ulna. It provides a stable method of securing traction. The only objection appears to be the danger of sepsis round the pin, and in practice this does not seem to arise. Plating and bone-grafting are not employed in Sweden, and the surgeons maintain that all fractures can be reduced by the measures just described. The limb is kept up from two to four weeks longer than we usually consider necessary in this country, and no massage is employed. On the other hand the patient is encouraged to use the other joints of the limb, and in the case of a fractured femur is provided with a string attached to his foot by which he can flex and extend the ankle and even raise the leg by extending the knee. Massage, they believe, disturbs the fragments and produces pain and spasm.

With compound fractures their practice is to cut away the infected parts and to suture the wound. They claim that sepsis will disappear because in a properly reduced and immobilised limb there is no room for blood clot where sepsis might be harboured. They believe non-union to be very rare in fractures treated by their methods, and claim that this is due to the complete immobility secured. This is directly contrary to the teaching in this country, where it is held that a slight amount of movement is essential to union; the ready union of the ribs, which is usually cited in support of this view, they ascribe to the rich blood-supply, and not to the mobility of the thorax. It seems hard to believe that anything but fibrous union can occur with a spike fracture over the point of which a flap of periosteum has fallen, but they maintain that we do not succeed in reducing them properly. I do not agree with this view, but believe that operation must always be necessary for fractures of the patella and olecranon, which are commonly of this type.

HEADACHE.

(DR. ADOLPHE ABRAHAMS.)

Probably there is no symptom encountered in any kind of practice which surpasses headache in the multiplicity of causes which may be responsible. In its intensity, headache may vary from a sensation of misery which hardly deserves the description "ache," to a lancinating unbearable neuralgia for which relief is insistently requested; but I do not think that in respect to differential diagnosis much, if any, value attaches to the various types of pain or the various situations of the head which may be affected. Some people appear to have a natural immunity, and never suffer from headache. In others the most trivial cause may be responsible; and little light on the phenomenon is cast by the realisation that the cortex of the brain is insensitive. It is said that headache originates in the dura mater, the nerve-endings of which may be irritated by pressure or inflammation, and although a considerable number of cases will be encountered in emotionally disposed subjects of chronic headache which can hardly be explained on these lines, it may be stated as a general proposition that anything which can cause hyperæmia of the dura may produce headache.

CRANIAL AND INTRACRANIAL CAUSES.

Proceeding from without inwards we may consider:

1. The *scalp*.—The so-called rheumatic headache is due to a fibrositis in this situation, and I believe that much of the success of "spinal manipulation" at the base of the skull may be attributed to dispersal of the nodules, although admittedly a vascular element cannot be excluded.

2. The *skull*.—Blows, fractures, and new growth of the calvaria. Periostitis and caries, generally of syphilitic origin. The teeth are also to be included in this group.

3. The *meninges*.—Acute meningitis, the chronic meningitis of G.P.I., and subdural abscess. Meningismus may be included here, the severe headache closely simulating meningitis in some acute conditions, or even constipation, in which lumbar puncture with the escape of a quantity of clear cerebro-spinal fluid under pressure gives rapid relief. The headache which sometimes follows lumbar puncture is explained as due to leakage following the puncture, which may be avoided by the use of a very fine needle. The unsupported brain falls upon the basal dura mater, the falx and tentorium are stretched. The inexperienced, alarmed at this sequel of lumbar puncture, and fearing meningitis, naturally repeat the puncture, which is the very worst treatment in the circumstances.

4. The *brain*.—Encephalitis, tumours, including gumma, abscess, innocent and malignant growths. Intermittent swelling of the pituitary gland has been advanced as a cause of migraine. Concussion, with which meningeal hæmatoma is often associated, and other vascular causes, such as thrombosis or aneurysm.

5. The *nose, orbit, and accessory sinuses*.—Iritis and glaucoma may be responsible for a so-called brow-ache, naturally described by the sufferer as headache.

EXTRACRANIAL CAUSES.

1. *General causes*.—The venous hyperæmia of cardiac disease. The headache of chronic renal disease may have a vascular or a toxic origin. In anæmia, too, toxic as well as circulatory causes may be at work. It is customary to accept both high and low blood pressures as productive of headache, but it is at least as likely that the underlying cause of the abnormal pressure is the responsible factor.

2. *Toxic causes*.—This is a very large group, and indeed an indefinitely large one. The number of toxins which are capable of producing a headache is unlimited. Commoner ones will be comprised under:

(*a*) *Endogenous*.—The headache of fevers, anæmia, cholæmia, gout, diabetes, and of copræmia with its hypothetical auto-intoxication. Calcium deficiency appears to be responsible for a peculiar form of headache, though in this case the altered coagulability of the blood suggests a physical rather than a toxic cause. The headache of menstruation may come into this category.

(*b*) *Exogenous*.—Poisonous gases, foul air. Many drugs: those with the worst reputation are opium, quinine, lead, alcohol, and tobacco.

3. *Reflex causes*.—Eyestrain, nasal obstruction, carious teeth are the commonest. But in a susceptible subject many others may be included—e.g., ovarian disease, and probably constipation, in which the colonic distension has a reflex action. Too tight or too heavy a hat, and an excessive weight of hair have sometimes been responsible.

4. *Functional*.—Necessarily a hypothetical group. It is never easy to exclude all reflex and toxic possibilities, and failure leads to the designation of neurasthenic headache. Fatigue, mental strain, and any sort of emotional disturbance will also be included.

INVESTIGATION AND TREATMENT.

A few general principles in the investigation of a chronic long-standing headache may now be considered. General *interrogation* may elicit a history of head injury or of venereal disease; obvious organic nervous disease may be evident from peculiarities of articulation. The commonplace physiological occurrences of digestion, the bowels, the menses, sufficiency of fresh air and recreation, and hygiene generally will be contemplated. Relief by recumbency suggests a circulatory association; a periodic incidence, migraine or neuralgia. Interference with sleep points to an organic intracranial cause. In certain instances a protracted psychological inquiry will be demanded. Taking the *temperature* is an elementary precaution; among the acute infections typhoid fever and meningitis are most prominent causes for headache. In the *eyes* there may be refractive error, glaucoma, and fundal changes to be recognised. Extremes of *blood pressure* readings are often encountered when headache is completely absent, but this estimation is useful as an index to possible renal disease or the vasomotor peculiarities associated with low pressure. In the *blood* there may be a positive Wassermann reaction, evidence of anæmia, and rarely of polycythæmia. *Albuminuria* may be found as an accompaniment of nephritis, or of the physical state with a low blood pressure and vasomotor instability. The *nose and sinuses* must receive attention, and the *cervical fascia* and muscles should be palpated.

In *treatment* any obvious or discovered cause must naturally be dealt with. Vigorous antisyphilitic treatment is required if there is any reasonable suspicion of this infection. Attention to teeth, removal of adenoids, cleansing of sinuses, correction of a refractive error, the treatment of anæmia by iron, the use of vasodilators or venesection, may be required, or the administration of calcium salts. On the digestive side appropriate treatment by aperients, &c., or the restriction of alcohol is often desirable, and in more elusive cases a search may be made for some allergic peculiarity. I once traced an otherwise inexplicable headache to ingestion of egg-albumin, and there may be many similar possibilities.

But often symptomatic treatment must be employed. Cold applications or evaporating lotions will be acceptable in almost any case. The numerous members of the salicylate group in their various combinations are too well known to need enumeration, and the idiosyncracies of some people in relation to these are equally familiar. Gelsemine has a reputation for neuralgic states. Cannabis indica is very useful for the headache associated with nervous strain in men, but caution in administration in the case of women is emphasised. Potassium iodide in small doses is well worth trying, even if there is no suggestion of syphilis. For the intractable headache of tumour, when surgical relief is impossible, hypnotics are necessary. Finally, as a resort in a particularly obstinate case, the old-fashioned treatment by a seton may well be tried.

STRATEGY AND TACTICS IN OBSTETRICS.

(MR. BRIGHT BANISTER.)

I am taking strategy to mean the general art of conducting a campaign, and tactics the detailed manœuvres of units incidental to the development of a campaign. The conduct of a natural pregnancy, labour, and puerperium comes under the heading of strategy, while the detailed treatment of abnormalities as they arise will call for tactics.

It has been suggested that if *antenatal care* were perfect no obstetric fatalities would arise, but though I am unwilling to minimise the importance of antenatal care it must not be forgotten that it has certain limitations. Obstructed labour, for example, should be rare to-day, but this danger cannot be wholly avoided by antenatal supervision. Gross abnormalities of the pelvis or malpresentations of the baby should certainly be recognised during pregnancy, but the contractile power of the uterus itself cannot possibly be estimated before labour begins. Very rarely irregular action of the uterus may produce a contraction-ring which obstructs delivery. Gross cases of primary uterine inertia are found in a recognisable type of woman—the nervous type, who approaches her labour in a state of fear. It is important to begin the management of labour before labour begins, by putting the patient into the proper condition to face it.

By antenatal care it may be possible to arrange our tactics so as to minimise the risk of hæmorrhage. It is possible, for example, to recognise placenta prævia fairly early, before there is danger of hæmorrhage. There is want of engagement of the presenting part, or an abnormal position of the fœtus. One side of the head is more easily palpable than the other, both on abdominal and vaginal examination, and one uterine artery is felt to be pulsating more powerfully than the other. Bleeding in placenta prævia is painless unless associated with the onset of labour.

Labour, where there is mild disproportion, is easier to conduct if the case has been thoroughly investigated beforehand. Where the mother has an asymmetrical pelvis, for example a pelvis smaller on the left side, a right occipito-anterior presentation will be accepted as a good sign, because the widest part of the child's head will engage in the widest part of the materna pelvis. A left occipito-anterior presentation, o the other hand, will be unfavourable; you wil know that the ground is untenable, and that you ar bound to lose. When there is any doubt one shoul never hesitate to examine the patient under a anæsthetic at the onset of labour. The way in whic the head is entering the brim should be observed and its favourable or unfavourable aspects con sidered. As labour progresses the state of the lowe uterine segment must be watched. As long as th cervix is stretched, the occipital pole coming dow and the caput only increasing gradually, progress being made. If the cervix is beginning to get œd matous the outlook is not so favourable. It impossible to decide what is happening in a tight for some time after the membranes have rupture even if labour is advancing well, we must be prepar to change our tactics suddenly if the condition mother or child demands it.

A uterus must never be bullied or prodded aft the baby is born; the placenta will not come of the vagina till it is out of the uterus, and if is given the danger of post-partum hæmorrhage infinitely reduced. We do too little to ensure the patient will be well when she gets up. T abdominal walls are common after childbirth, a should be prevented by suitable exercises. It useless to tell the patient what to do; should be done under the supervision of the nur and should be begun in bed. Massage is valuable a diminishes the chances of thrombosis and embolism.

Hitherto it has been believed that serious or fa *morbidity during the puerperium* is most commo due to infection of the placental site or of injured perineum, but a recent investigation Liverpool seems to show that a condition approachi gangrene in the lower uterine segment is the m common lesion. This implies that there must be larger number of cases with serious lesions of t cervix than we have been accustomed to thin and perhaps this is an indication for not leavi patients too long in labour. Fever and rise of pul rate in the patient may be signs not only of exhausti but of the onset of infection and should be taken an indication for expediting delivery. Many of th cases showed cervical tears but I cannot believe th these were all due to the too early application forceps; some I believe to be due to strong uterin contractions acting on a relatively resistant cervi Where hæmorrhage continues after delivery, althoug the uterus is hard, the cervix should be examined and any tears sutured.

A *postnatal examination* should be made six to eight weeks after delivery, and if the pelvis is normal the woman can be dismissed. She should be warned to return, however, if she experiences pain, discharge, or any interference with the menstrual cycle when this reappears.

PUBLIC HEALTH SERVICES

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are 1930 statistics of two boroughs, two urban districts, and five rural districts:—

Name of district and estimated mid-year population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Respiratory diseases with influenza.	Heart disease.	Infant and neonatal mortality.	Young child (1–5 yr.) mortality.	Maternal mortality in childbirth.
Leamington (29,450)	14·0	13·3	0·54	2·41	1·2	2·7	36/29	—	2·4
Wrexham .. (18,150)	14·6	12·7	0·88	1·82	1·1	3·0	74/–	37	7·4
Rowley Regis (43,600)	17·2	10·6	0·78	1·28	1·5	1·7	61/36	24	4·0
Kettering .. (31,070)	13·9	11·1	0·90	1·67	1·4	2·3	44/35	30	0·0
Doncaster .. (44,680)	27·0	9·7	1·00	0·80	1·7	1·1	71/–	—	4·1
Chelmsford.. (28,600)	14·4	11·3	0·87	1·43	0·9	1·9	46/–	7	9·7
Barnstaple .. (18,540)	13·9	12·1	0·59	1·30	1·3	2·4	50/–	—	0·0
Erpingham.. (17,750)	14·6	11·7	0·28	—	—	—	61/–	—	7·7
Hereford .. (13,060)	17·7	12·2	1·14	2·0	0·9	2·3	39/30	—	0·0

Registered stillbirths per 100 live births: Leamington, 3·6; Wrexham, 4·8; Rowley Regis, 3·4; Kettering, 2·3; Doncaster, 3·5; Chelmsford, 3·6; Barnstaple, 3·5.

The populations are the (R.-G.) estimates for 1929, except that 140 has been added to Rowley Regis.

Leamington.

Dr. W. L. Goldie says the Royal Spa is being increasingly used as a residential area for Coventry and Birmingham, and that this fact increases the problem of house shortage. Apart from two factories there are few industries beyond supplying the wants of residents and visitors to the Spa in search of health. Progress has been made in many matters during the last quinquennium. The pump rooms have been brought up to date and the new filtering plant for the baths has more than doubled the number of users in the last few years. Motor-tractors have been introduced for the removal of refuse; the destructor has been remodelled and new sewerage works have been completed, and a considerable portion of the bed of the River Leam has been cleaned. During this period the council have built 246 houses, and 270 have been erected by private enterprise as against 170 and 35 in the previous quinquennium. In 1927 the Leamington Slum Clearance Company provided eight houses and in 1929 ten houses; and for each house erected by them one slum dwelling was closed and demolished. The five-year programme proposes 400 houses for new housing and 90 for the clearance of slums. The latter may be erected by the private company just mentioned. Towards the end of 1930 the corporation purchased 17 acres for the erection of 190 houses, 100 of which will be finished by the end of 1931. The council retain three maternity beds at the Warneford Hospital at which there is both an antenatal and a postnatal clinic. Mothers, admitted under the council's scheme, attend the postnatal clinic a month after discharge.

Wrexham.

Dr. T. P. Edwards says a striking feature of the year was the increase in the borough of infectious diseases. The fever hospital belongs to the rural district council and is administered by a joint committee of several authorities. Of 105 cases of diphtheria in the borough, 99 were admitted amongst whom there were six deaths, two of the cases being moribund on admission. Scarlet fever cases numbered 155 with three deaths, the hospital admissions being 102. It has been decided to add two blocks to the hospital, one consisting of single-bedded wards; and an application has also been made by the borough for the formation of a joint hospitals board. The borough is handicapped by its present boundaries in dealing with housing requirements, and discussion is now taking place with the rural district and the county council for an extension. The renovation and extension of the sewerage scheme has been taken in hand and the new scheme will make ample provision for any extension of the borough which may take place. The reconstruction of the public abattoirs is also under consideration. A preliminary report has shown the need for 220 houses to deal with slum clearance, but the policy of the council as to the displaced slum-dwellers is still under consideration.

Rowley Regis.

Dr. W. E. Roper Saunders says the chief industries in this urban district are the manufacture of iron goods and of bricks and tiles. Upon the hills there are important quarries yielding a hard basaltic rock known as "Rowley Rag," used for paving and channelling purposes. Several years' depression in all the industries have lowered the general condition of the population. Dr. Saunders draws attention to a change of custom in death certification, in that deaths formerly certified as senile decay are now certified as heart disease and arterio-sclerosis. Of the 75 heart disease deaths in the Registrar-General's short list for Rowley Regis, 43 are at ages over 65, most of which were probably due to natural degenerative processes. Dr. Saunders would like to see these deaths grouped as: (1) congenital heart disease; (2) infective heart disease—i.e., after-effects of rheumatism, scarlet fever, &c.; (3) specific—i.e., syphilitic—heart disease; and (4) cardiovascular degeneration.

The isolation hospital belonging to the district council is quite unfit for use and patients from the area are sent to the Stourbridge and Halesowen joint hospital upon a charge basis per week. The county council are considering the provision of a large joint *isolation hospital* for South Staffordshire. The tuberculosis scheme is administered by the Staffordshire, &c., joint committee, but there is an insufficiency of hospital beds for advanced cases. For maternity cases the Birmingham hospitals are used, and on July 1st, 1931, the council decided to provide experimentally for one year a consultant in all cases of difficulty whether prior to or during labour. Mr. Lewis Graham, F.R.C.S., who has already been appointed consultant for puerperal fever, will act in this new capacity. No in-patient institutional treatment has yet been arranged for ophthalmia neonatorum. The case-fatality of diphtheria has been high during the last three years. In 1928 there were 33 cases with three deaths; in 1929, 59 cases with four deaths; and in 1930, 51 cases with four deaths. Only 23 of the 51 cases were admitted to hospital in 1930.

Out of the 9283 inhabited houses, 1013 are owned by the council. There is a shortage of houses at reasonable rates and considerable overcrowding, as only about 10 per cent. of the population can afford to pay more than 7*s.* 6*d.* per week. A number of council tenants sublet rooms but so far no definite

and Mundesley. The council have their own well at the isolation hospital, the water being d by a windmill. Most of the villages are lied with water from shallow wells in the Glacial t. Dr. Linnell has had no reason to blame these ow wells for water-borne disease since he became ical officer in 1912. Three of the refuse tips are uisance, and Dr. Linnell suggests "controlled" ng, successfully adopted in a neighbouring urban ict, as a remedy. Of the 4700 inhabited houses ouncil own 239. The old cotttages in the purely l villages are, says Dr. Linnell, of the low standard e expected in an agricultural district where the is poor. Nevertheless he has rarely been able lame the cottages for the ill-health or disease of occupiers. It may be pointed out, however, that the general death-rate and the infant mortality- were higher than the rate for the whole country 930. The Registrar-General's short list of causes eath is not included in the report, so that one not say whether the low death-rate from tuber- sis included residents who died outside the area.

ne population of the district tends to decrease. there is no marked shortage of cottages for the worker. When applications are received the icil hold an inquiry and build more cottages if want is proved. The real difficulty is that an cultural labourer earning less than 30*s.* cannot ed to pay 5*s.* a week rent.

Hereford Rural.

r. R. Wood-Power says the housing survey of) disclosed that about 5 per cent. of the working s houses in this rural district were seriously ctive, and 25 per cent. needed repair. The ncil have been made the authority for the sing (R. W.) Act, and a scheme has been prepared assisting owners in the improvement of existing ages. No applications were received under the during 1930, although one of the difficulties in edying unfit houses is said to be inability of the ers to provide the necessary capital. It is diffi- to see why the Act which is so successful in nstaple should be of no avail in Hereford or ingham. Dr. Wood-Power refers to the failure house owners to protect their dip wells from ution, and also condemns the not uncommon ctise of discharging slop drains into the nearest lside ditch. There were seven cases of typhoid, of which ended in recovery. Four came from three ses which used a well polluted with sewage. cessful lectures on clean milk production have n promoted in coöperation with the agricultural aniser and the dairying instructress for the nty.

bout 2500 hop-pickers came from South Wales Staffordshire to 22 farms. All sorts of out- ldings are used for their accommodation, but there n increasing number of specially-erected buildings. ich greater regard is paid to the welfare of the kers than formerly. The posters of the Health d Cleanliness Council have been instrumental in mulating the best efforts of the pickers to secure eir own comfort and cleanliness.

MENTAL HOSPITAL REPORTS.

The *Hertfordshire County Mental Hospitals* Hill End, St. Albans, and at Arlesey had 1212 atients at the end of last year and are somewhat hort of beds. Plans are now complete for the erection f suitable accommodation for a further 365 patients nd for a mental deficiency institution. The opening f the nurses' home in January, 1930, provided 22 nore female beds, and a detached mansion, Highfield Hall, has been taken over for quiet and convalescent emale paying patients. The recovery-rate was 32·1 er cent. and the death-rate 4·02 per cent. The eneral health was satisfactory; there were nine cases of chicken-pox among children, five of severe diarrhœa, one of paratyphoid B, and one of dysentery. The medical superintendent stresses the importance of sepsis as an ætiological factor, and the value of the work of the dentist, gynæcologist, and ear, nose, and throat surgeon. Sixteen out of 20 men and 30 out of 43 women discharged during the year received some form of special treatment, such as induced malaria, hydrotherapy, or eradication of sepsis. An increasing number of patients attend the handicraft class on the women's side, and many of the useful articles made there are sold in the canteen. Twelve men have had full parole and eight men and six women parole within the estate. Unfortunately, the hospital still has to house some mental defectives. Since the Mental Treatment Act came into operation, three temporary but no voluntary patients have been admitted. The laboratory carried out nearly 2000 tests during the year, of which rather less than half were done for the medical officer of health. During the year, five nurses and three attendants obtained their R.M.P.A. certificate, one with distinction.

Of the Kent County Mental Hospitals, that at Barming Heath had 1941 patients on the last day of last year, causing considerable overcrowding. The recovery-rate for the year was 34 per cent. and the death-rate 6·1 per cent. There were seven cases of erysipelas and six of influenza, but otherwise the patients' health was good. Electricity has been installed throughout the hospital. The occupations department keeps increasing numbers of patients employed, with very gratifying results, and efforts are made to avoid any monotony. The department is self-supporting, and has sufficient surplus funds to send parties to the seaside and to entertainments and to help needy patients. Parole is granted extensively. The visiting commissioners point out an admirable device which they found in the poison cupboard: every poison bottle has on it the name of the antidote and directions to the nurse what to prepare and what to give after sending for the doctor. They urge the establishment of a laboratory, although the present arrangement of sending specimens to the county pathologist is technically quite satisfactory. An out-patient department has been opened at the West Kent General Hospital and is already appreciated.

At Rubery Hill and Hollymoor there were 1546 patients on Dec. 31st last. The recovery-rate was 46·9 per cent. and the death-rate 6·8 per cent. There was less influenza than in the previous year and no intestinal epidemic disease; there were two cases of erysipelas and three of tuberculosis. A total of 385 men and 364 women were kept employed during the year at trades or work for the hospital. Ten men and eight women nurses passed the final examination of the R.M.P.A. during the year, bringing the total certificated to 90 men and 63 women. Ten men and 14 women nurses are registered by the G.N.C.

The Ipswich County Borough Mental Hospital housed 339 patients on the last day of last year. The recovery-rate for the year was 38·9 per cent. and the death-rate 6·82 per cent. Both figures show distinct improvement on those in the preceding year. The general health was good, there was no epidemic disease, and only two patients are known to be phthisical. During the year 11 post-mortem examinations were conducted. A small bacteriological unit has been established, so that general paralysis can now be treated by malaria, and "sulfosin" injections can be given when required. The dental surgeon visits fortnightly, and saw 97 patients during the year. An occupational therapy class has been formed and is growing rapidly; it is supplying the rugs required for the rooms of the new nurses' home. Wireless was installed in the dining hall and day rooms at Christmas, and in the summer there are outings by motor-bus to the seaside. Parole and week-end leave are granted freely. The new nurses' home and the new infirmary with solarium are nearly completed and will to some extent relieve the overcrowding. There is, however, great need for a detached admission and convalescent block. Preliminary negotiations for an out-patient clinic have been made. Of the nursing staff 11 men and 10 women hold the R.M.P.A. certificate and six men and three women are registered. Alterations in the uniform have done much to improve the "nursing" atmosphere of the hospital.

There were 1342 patients on the registers of the DEVON MENTAL HOSPITAL on Dec. 31st last, and the accommodation is considerably overtaxed. The recovery-rate was 45·45 per cent.—the highest since 1899—and for private patients alone it was 75 per cent. The death-rate was 7·5 per cent. and post-mortem examinations were made in just over 78 per cent. of cases. The laboratory made over 2000 routine examinations as well as a number of special investigations. There was one case of typhoid fever, which occurred after the routine inoculations with T.A.B. had been discontinued; this prophylactic measure is now to be re-enforced. Six cases of general paralysis were treated with malaria, five from mosquitoes, and one from infected blood; four were discharged and one of the others is considerably improved. Of the 46 cases which have now been treated here, only one has returned to hospital with a relapse. Tryparsamide is also used for general paralysis, and two cases of disseminated sclerosis were given a course of malaria. Of 34 patients treated with ultra-violet light, 10 improved mentally and 16 physically, but six appeared to be made worse; the treatment has been found particularly unsuitable for acute agitated melancholia. The visiting dentist attended fortnightly and examined 976 patients. The visiting ophthalmologist saw 76 cases, and the radiologist made 54 examinations. The visiting surgeon performed 27 major operations. Parole is given as freely as possible; 135 patients have had it in the grounds and 48 beyond the estate. Many of the wards are now worked on the open-door principle. The out-patient clinic at Exeter had 215 attendances during the year, as compared with 63 the previous year, and weekly sessions are now held. A number of handicrafts and industries are actively pursued in this hospital and many useful articles have been made. The hospital was a centre last year for the preliminary examination of the G.N.C., for which 17 of its nurses entered. Three sisters and one attendant passed the final examination of the G.N.C. and nine nurses and one attendant obtained the R.M.P.A. certificate.

At CHARTHAM DOWNS there were 1402 patients at the end of last year, and here again there is urgent need of more accommodation. The new nurses' home is nearing completion. Plans for an admission hospital and convalescent villa have been provisionally approved, and a house for mental defectives has been opened. The recovery-rate for the year was 37 per cent. and the death-rate 8 per cent. The general health was good, except for a mild epidemic of mumps in the children's ward. Sulfosin is given for general paralysis and for some cases of schizophrenia. The visiting ear, nose, and throat specialist is investigating nasal sinus disease. The pathological department carried out a number of investigations. Seventy-two men and 13 women are allowed parole beyond the estate and 67 men within it, and a number of wards are "open-door." The hospital now has a modern operating theatre and a special department for the dental, ophthalmic, and ear, nose, and throat specialists. The Kent and Canterbury Hospital have arranged for an out-patient clinic to be held there by medical officers from Chartham Downs. The nursing staff are eager to work for their certificate, and one attendant obtained a distinction in the R.M.P.A. examination.

The STAFFORDSHIRE MENTAL HOSPITALS' BOARD have three institutions: at Stafford, Burntwood, and Cheddleton. At STAFFORD there were 1086 patients on Dec. 31st last, which meant a deficiency of 136 beds. In an institution of this kind—opened in 1818—the overcrowding is more serious than in on of a more modern type, and the staff are to be congratulated on the recovery-rate of 25·77 per cent, and on a death-rate of no more than 6·2 per cent. Work is proceeding on an admission and convalescent hospital. A number of patients are kept usefully employed, but there is no occupations officer, and the nursing of the sick is hampered by the absence of verandahs. Fourteen patients were allowed out on trial, but only two of them with money allowances. There was no epidemic disease in the hospital except for one case of severe diarrhœa. The laboratory has carried out routine and research work, and a paper on the significance of cholesterol in cellular oxidation is to be published. The consulting surgeon visits when required. Fifty male and seven female nurses are certificated or registered, and five men and one woman obtained the R.M.P.A. certificate during last year.

At BURNTWOOD there were 988 patients at the end of the year, and here also there is overcrowding. Permission has now been given to prepare plans for an admission hospital of 72 beds and the committee hope to provide two convalescent villas in the grounds. The recovery-rate for the year was 32·2 per cent. and the death-rate 6·73 per cent. There were seven cases of influenza and three of dysentery, and the laboratory examined nearly a thousand specimens fæces alone, as well as making many other routin tests. A number of the patients are employed raffia work and rug-making. Several operatio were performed by the consulting surgeon. Thirt patients were allowed full and 18 a more limite freedom. Four nurses passed the final R.M.P.A examination and 42 men and 12 women are certificate or registered. No female nurses are employed on t male side.

At CHEDDLETON there were 1190 patients at t end of last year, and here also further beds must provided soon, probably within the existing esta An admission hospital is being built. The death-ra was lower than in previous years, but there were ni deaths from tuberculosis. There were seven cases dysentery. There are a large number of childr in this hospital and these offer many special problem Sixteen general paralytics were treated with malar and two with sulfosin; six were discharged apparent recovered and five are much improved. The labo tory carried out a number of tests, and the visiti specialists saw a number of patients; they compl of the absence of an operating theatre, and t medical superintendent hopes that it will be poss to provide one in the nurses' bicycle room. Fa and handicraft work are in full use in this hosp Of the staff 53 men and 24 women are certificated registered.

The WEST SUSSEX COUNTY MENTAL HOSPIT at CHICHESTER had 914 patients on its books May 29th last. The death-rate for 1930 was per cent. and the recovery-rate 38·13 per ce The general health was good, and there was epidemic disease except for one case of scarlet fe Three operations were performed and three men we sent to Knowle for malarial treatment; they benefi physically but showed very little mental improv ment. A handicraft department was establish during the year, one of the nurses taking the cou of instruction arranged by the Central Association f Mental Welfare. Parole beyond the estate is giv to 16 men and 12 women; 45 other patients are fr within the grounds, and several of the wards ar "open-door." An out-patient clinic has been ope at the Worthing Hospital, and 12 voluntary but temporary patients have been received at the Ment Hospital. A new block for chronic patients a a villa for 50 women are being erected, and will he the difficulties incident on overcrowding. Dur the year 17 nurses and six attendants obtained t R.M.P.A. certificate and one nurse passed the fin examination of the G.N.C.

CORRESPONDENCE

BENDIEN'S WORK ON CANCER.

To the Editor of THE LANCET.

SIR,—The Investigation Committee of the British Empire Cancer Campaign has inquired into the Bendien method of diagnosis for cancer, and finds that, although the preliminary results were encouraging, subsequent inquiries have failed to justify the early promise. The Investigation Committee therefore has come to the conclusion that the Bendien method of diagnosis for malignant disease cannot at the present time be accepted as reliable.

I am, Sir, yours faithfully,

C. GORDON WATSON,
Chairman, Investigation Committee.
British Empire Cancer Campaign, 12, Grosvenor-crescent, London, S.W., Oct. 2nd, 1931.

*** As we go to press we are informed by Dr. J. R. de Bruine Groeneveldt of the outcome of an investigation at the Institute for Preventive Medicine in Leiden—namely, that the spectroscopic differentiation of serum albumins is not possible with Bendien's method.—ED. L.

"A DISCLAIMER."

To the Editor of THE LANCET.

SIR,—Mr. Rowley Bristow's disclaimer in your issue of Sept. 26th (p. 715) is, I think, hardly necessary if the full context of the pertinent sentences of the paragraph be taken. It is as follows:

> "Thanks to certain ingenious technical modifications introduced by Dr. Morton Smart, his apparatus produces a far more comfortable current than the unmodified faradic current. It can therefore be used at an earlier stage of recovery than its prototype. The credit for introducing *this current as a routine procedure for injuries requiring* muscle movements and re-education is chiefly due to Mr. Rowley Bristow, and the apparatus is therefore often called by his name. The Morton-Smart coil, the Smart-Bristow coil, and the Bristow coil (as it will be called hereafter) are one and the same."

The words in italics have been omitted by Mr. Bristow in his quotation, and these with the other sentences give, I think, full credit to Dr. Morton Smart for the original invention and use of this apparatus, but some credit is certainly due to Mr. Bristow as an orthopædic surgeon for calling for its routine employment in suitable cases.

I was present at the discussion of the Electrotherapeutical Section of the Royal Society of Medicine in 1923, and heard Mr. Bristow's generous disclaimer on that occasion, and was fully aware of the exact position of affairs as then recounted. Hence the careful wording of the paragraph above quoted.

I am, Sir, yours faithfully,

Park-crescent W., Oct. 2nd, 1931. C. B. HEALD.

THE ADENOID FACIES.

To the Editor of THE LANCET.

SIR,—I am particularly anxious to obtain, for display in our museum, photos of a case of adenoids, one showing the condition before operation, and another taken a year or so later to illustrate the mental and physical improvement that has resulted from treatment.

If any reader has such, and would loan the same to me, I would have them copied, and originals promptly returned.

I am, Sir, yours faithfully,

H. B. NEWHAM,
Curator, London School of Hygiene and Tropical Medicine.
Keppel-street (Gower street), W.C., Oct. 5th, 1931.

CASES OF PERNICIOUS ANÆMIA.

To the Editor of THE LANCET.

SIR,—I should be very grateful if any of your readers would refer me cases of pernicious anæmia for treatment at Guy's Hospital.

Patients with septic complications or paralysis are not suitable.

I am, Sir, yours faithfully,

L. J. WITTS.
Guy's Hospital, London, S.E., Oct. 6th, 1931.

OBITUARY

EDMUND WEAVER ADAMS, F.R.C.S.

THE death occurred on Thursday, Sept. 24th, of Dr. Weaver Adams, who for 40 years had been in general practice in Slough, obtaining a position not only in the town but in the surrounding countryside whose influence it would be difficult to estimate.

Edmund Weaver Adams was born in 1869, and was educated at the City of London School and King's College Hospital. He qualified with the double diploma in 1892, and took the F.R.C.S. England in 1894, the age regulations preventing him from receiving the diploma one year earlier. After holding the house appointments at his hospital, he entered almost immediately into the practice with which he remained connected for the rest of his life, and he built up his great connexion by a combination of high professional skill and of power to understand the difficulties, other than physical, that might be present among his patients of all sorts. Early in his career he obtained the D.P.H. of the Royal Colleges, and three years after his start in Slough became medical officer of health for the district. He held numerous other professional appointments, all of which he discharged zealously, but he was particularly interested in questions connected with maternity and child welfare, and the last three years of his life were largely devoted to raising funds for the Slough Maternity Home. He had the satisfaction of seeing the home opened this year, although it was started encumbered with debt, and a proposal has been made that the removal of this debt would prove a fitting memorial to one whose straight and strenuous life had gained him such widespread admiration and respect. We learn that already the editor of the *Slough, Windsor and Eton Observer* will receive subscriptions towards a fund on behalf of the Home, and communications, marked "For the Dr. Weaver Adams Memorial," should be addressed to him at Buckingham-gardens, Slough.

Weaver Adams was widely known for his devotion to and proficiency at cricket. An excellent field and an astute lob-bowler, his batting figures for the Slough Cricket Club indicate that, even in the highest cricket circles, he would have been a prominent exponent of the game. From the year 1905 for the following 15 years his batting average was only once below 40 and only twice below 50, while he wound up a 21 years' captaincy of the club by making a century in each of his last three games.

Dr. Adams's death was tragically sudden. He had been aware for some time that his cardiac condition was unsatisfactory, and had for that reason discontinued playing cricket. While on a holiday in Llandrindod the car, in which he was driving his daughter and her husband, got fixed in a rut. While his son-in-law was gone to fetch help, Dr. Adams and his daughter attempted to push the car free, and during their efforts Dr. Adams collapsed and died immediately.

Dr. Adams leaves a widow, three married daughters, and one son, Dr. Ralph Weaver Adams, who has been for some time associated with his father in practice. Another son, a flying officer, lost his life in the war.

Dr. Herbert Arnott Eadie, who was killed on Sept. 27th in an accident to a motor tractor at Post Hill, Leeds, received his medical training in Edinburgh, where he graduated M.B., Ch.B. in 1922. After holding resident posts at the Royal Infirmary, Edinburgh, and at the Leeds Public Dispensary, he went into general practice in Leeds, where he soon made his mark, medically and socially. He was a popular officer in the Territorial Army, and for the last four years had held a captaincy in the R.A.M.C. attached to the 146th Field Ambulance. A keen sportsman, he was fond of riding, shooting, golfing, and motoring. He was a man of charming personality, and many among his large circle of friends will have experienced in his tragic death a sense of personal loss. Dr. Eadie was in his thirty-first year, and leaves a widow with two young children.

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS.

THE DISSOLUTION.

In the House of Commons on Oct. 6th the Prime Minister announced that the King had consented to a Dissolution of Parliament. It is understood that nomination day for the new Parliament will be Friday, Oct. 16th, and that polling will take place on the 27th.

LEGISLATION ADVANCED.

On Wednesday, Sept. 30th, the National Economy Bill was passed through the remaining stages in the House of Lords and received the Royal Assent.

The Finance (No. 2) Bill was read the third time in the House of Commons on Thursday, Oct. 1st, and was read a first time in the House of Lords on the llowing day.

In the House of Commons on Thursday, Oct. 1st, P. Cunliffe-Lister, President of the Board of rade, introduced the Foodstuffs (Prevention of Exploitation) Bill, which was read a first time.

In the House of Commons on Tuesday, Oct. 6th, the Foodstuffs (Prevention of Exploitation) Bill was passed through Committee and read the third time.

GOVERNMENT AND FOOD PRICES.

On Monday, Oct. 5th, in the House of Commons, Sir P. Cunliffe-Lister, President of the Board of Trade, moved the second reading of the Foodstuffs (Prevention of Exploitation) Bill. He said that the object of the measure, which was limited to six months, was to ensure that there should be no exploitation, either by the creation of shortages or by unreasonable increases of prices of articles of food and drink of general consumption, by reason of the financial situation in which the nation found itself through having gone off the gold standard. He could not say that the powers sought in this Bill would be justified by anything that had happened hitherto or appeared likely to happen, but the Government felt that the House ought not to adjourn without powers being taken in case they might be necessary while Parliament was not sitting. A tribute was due to the traders, both wholesale and retail, for the attitude they had taken up. On Sept. 21st, the day on which the country went off the gold standard, he asked the representatives of the great wholesale food trades to meet him—meat, flour, bacon, sugar, tea, provisions, and so on—and he got an immediate offer of help. It was of great importance that from the very outset trade should be kept on a normal basis, and it was essential in cases of this kind to tackle it at the wholesale end. To create a vast organisation, such as the Ministry of Food during the war, would take many months, and by that time the emergency would have passed. They had to ensure that there would be a steady flow of supplies through the normal channels at reasonable prices. The powers were deliberately designed to be as wide as possible. He believed that they would enable the Government to set up a Purchase Board, but a financial resolution would be necessary to carry that out. He hoped and believed that with the coöperation and goodwill which had been shown on the part of the great trades up to the present, these powers would never have to be used, but, if necessary, the Government would not hesitate to do so.

After further debate the Bill was read a second time.

HOUSE OF COMMONS.

WEDNESDAY, SEPT. 30TH.

Regional Medical Officers.

Mr. Stephen asked the Minister of Health if he would consider reducing expenditure by abolishing or reducing the regional medical office department under the National Health Insurance Acts, and allow panel practitioners to determine whether their patients were fit for work or otherwise without interference from an outside department.—Mr. E. D. Simon replied: The provision of a second medical opinion in cases of doubt whether an insured patient is incapable of work has been recognised as desirable since sickness benefit first came into operation, and my right hon. friend cannot undertake to consider the hon. Member's suggestion with favour.

THURSDAY, OCT. 1ST.

Unemployed Workers and Health Insurance.

Sir Robert Young asked the Minister of Health whether unemployed workers would be automatically deprived of national health insurance benefits should the public assistance committee, under the means test, deprive them of further unemployment benefit; and, if not, what steps would be taken to keep them entitled to health insurance benefit, and, in particular, whether their health insurance contributions would still be payable by the State.—Mr. Chamberlain replied: The answer to the first part of the question is in the negative. So long as a person remains insured under the National Health Insurance Acts he will continue to be entitled to benefits in accordance with the provisions of those Acts, and will not be subject to penalties for arrears of contributions in respect of weeks for which satisfactory proof of unemployment is produced.

Hours of Labour in Mines.

Mr. Mander asked the Secretary for Mines when the Geneva conference for the simultaneous ratification of the convention on hours of labour in mines was to be held.—Mr. Isaac Foot (Secretary for Mines) replied: As indicated by my predecessor in office, arrangements are being made for an informal discussion between the principal nations interested in this convention, and it is hoped this will take place at Geneva in the latter part of this month.

Government and Prices of Necessities.

Lieut.-Commander KENWORTHY asked the President of the Board of Trade whether he was contemplating the making of orders, in consultation with the Treasury, to prevent profiteering in food, coal, and other necessities under Clause 1, Subsection (3) of the Gold Standard (Amendment) Act, 1931. Dr. PHILLIPS and Mr. KIRKWOOD asked similar questions.—Sir PHILIP CUNLIFFE-LISTER replied: As hon. Members will be aware, I am introducing to-day a Bill taking powers to deal with the prevention of exploitation in regard to articles of food and drink of general consumption.

Bacteriological Standard of Milk.

Mr. POTTS asked the Minister of Health whether he could introduce legislation enforcing a definite bacteriological standard of milk to be fixed, and make it an offence for producers and retailers to sell milk not of the fixed standard.—Mr. CHAMBERLAIN replied: I cannot undertake to introduce any such legislation at the present time.

MONDAY, OCT. 5TH.

Cuts in Social Services.

Mr. LONGDEN asked the Minister of Health whether he was aware of the cuts in social services already agreed upon, as well as others contemplated, by the Birmingham City Council; and the amounts involved in the different departments.—Mr. E. D. SIMON replied: My right hon. friend is informed that no cuts have been agreed upon at present by the Birmingham City Council, that a general review of expenditure—both actual and contemplated—is under consideration by the standing committees of the Corporation, and that this does not necessarily imply that any recommendations will be made involving cuts in social services in Birmingham.

Regional Medical Service.

Mr. RHYS DAVIES asked the Minister of Health the cost of the regional medical service under the national health insurance scheme for each of the last five years.—Mr. CHAMBERLAIN replied: The following is the cost of the service in England and Wales: 1926–27, £130,785; 1927–28, £156,721; 1928–29, £156,700; 1929–30, £164,886; 1930–31, £184,036.

Poor-Law Relief.

Mr. DAY asked the Minister of Health the total number of persons in receipt of poor-law relief in England and Wales on the last convenient date; and if he had any statistics showing the number of rate-aided patients in mental hospitals, casuals, and persons in receipt of domiciliary relief on the same date.—Mr. E. D. SIMON (Parliamentary Secretary to the Ministry of Health) replied: The latest date for which complete figures are available is Jan. 1st, 1931. The following statement shows the number of persons in receipt of poor relief on that date, and the number of persons of certain classes in receipt of poor relief on subsequent dates:—

—	Number on Jan. 1st, 1931.	Number on latest available date.	
		Number.	Date.
1. Persons in receipt of poor relief*—			
(a) Institutional relief	212,166	193,159	Sept. 5th, 1931.
(b) Domiciliary relief ..	775,072	776,735	
Totals of 1	987,238	969,894	
2. Rate-aided patients in mental hospitals	108,917	—	—
3. Casuals	11,576	13,239	Sept. 5th, 1931.
4. Persons in receipt of domiciliary medical relief only	16,119	13,218	June 27th, 1931.
Total	1,123,850	—	

* Excluding rate-aided patients in mental hospitals, casuals, and persons in receipt of domiciliary medical relief only.

TUESDAY, OCT. 6TH.

Local Authorities and Housing Programmes.

Mr. MILLS asked the Minister of Health the number of local authorities who had received sanction for house-building programmes of over 100 houses since January, 1931; how many had been started; and how many of such authorities had received sanction or refusal since July 24th.—Mr. E. D. SIMON replied: The number of local authorities is 126. These local authorities have commenced to build over 27,000 houses since Jan. 1st, 1931, but the information available does not enable me to say how many of these houses are included in the authorisation given since that date. The number of local authorities referred to in the last part of the question are 14 and none respectively.

MEDICAL NEWS

HOSPITAL DINNERS.

Saint Bartholomew's Hospital.

The old students' dinner was held in the great hall of the hospital on Oct. 1st, under the chairmanship of Sir Percival Hartley, who infused an atmosphere of friendliness and unity. Recalling the noteworthy events of the year he congratulated the medical school and Mr. Girling Ball on his appointment as dean in succession to Dr. T. W. Shore. He expressed the general regret felt in the retirement of Sir Holburt Waring, whose name was perpetuated in the new block of wards which owed so much to his untiring work. Mr. Dunhills appointment as hon. surgeon to H.M. the King had necessitated his leaving his post as assistant director of the surgical unit to which Mr. Patterson Ross succeeded, but his services would be retained as associated surgeon to the unit. A residential college, Sir Percival remarked, built on the actual ground granted by Rahere, had been an integral part of the hospital for over 100 years; Sir James Paget was for long its warden, and two of his sons were born there. Of late years it had been necessary to utilise the residential college for other purposes, but he hoped that a new scheme of reconstruction would enable it to be re-established. Turning to the future he spoke of the proposal to remove pre-clinical teaching outside the hospital bounds, and to obtain more obstetrical teaching at the City of London Maternity Hospital. Of the 213 new entries to the medical school 118 were full-time. He welcomed the collaboration with St. Thomas's and Guy's in the matter of entrance scholarships, which would, he hoped, lessen competition and lead to other forms of coöperation. Many sporting trophies had been brought home, including the Rugby cups and practically all the water events. Week-end post-graduate classes to be held were reminiscent of the brief visits paid in olden days by students wandering in search of knowledge. The toast of "The Guests" was proposed by Dr. Geoffrey Evans, who praised Lord Stanmore, entrusted with hospital finance in difficult times, and the other lay officers; congratulated Sir George Collins on his recent honour; thanked the city companies for their unfailing support, and welcomed Admiral Sir Hugh Watson, Dr. T. Scott Lidgett, Sir John Rose Bradford, the directors of the Medical Services, the Master of the Apothecaries, Air Vice Marshal J. McIntyre, the deans of St. Thomas's and Guy's Hospitals, and the Dean of St. Paul's. In responding Dean Inge expressed his envy of doctors with their opportunities for individual treatment; his own duties he likened to those of a man intent to fill many narrow-necked bottles placed before him row upon row by throwing a bucket of water over them in the hope that a few drops at any rate might get home. The final toast of "The Chairman" was proposed by Sir Charles Gordon Watson, who has served as dinner secretary for 15 years, and is now associated with Mr. Reginald Vick.

Charing Cross Hospital.

The annual dinner for past and present students was held at Gatti's Restaurant on Oct. 3rd. The chair was taken by Dr. J. M. H. MacLeod, who proposed the toast of the hospital and the medical school. He had been first attracted to Charing Cross Hospital 30 years ago, he said, by the fact that, in the words of the *British Medical Journal*, it was the "most easily accessible of all the London schools"; but he had soon found other advantages in the colleagues with whom he had been fortunate enough to work—Sir James Galloway, Sir Herbert Waterhouse, Sir James Cantley, Dr. Watts Eden, Mr. P. L. Daniel, and many others. He wished that Dr. Kay Menzies could have been present to hear that Charing Cross, a voluntary hospital, was not only solvent but had a credit balance. Rumours were abroad that the London County Council would eventually absorb the London voluntary hospitals, and that these would become State controlled. This was not only an idle but a harmful rumour which injured the voluntary hospitals and interfered with their subscriptions. The London

Dr. Geoffrey McKay Gibbon, of Forres, has been appointed surgeon to the *Discovery II.* for her Antarctic voyage.

Ross Award Fund.

It is announced that £15,410 has now been subscribed to the fund started two years ago as a testimonial to the work of Sir Ronald Ross, F.R.S.

Chelsea Clinical Society.

The annual dinner of this society will be held at the Hotel Rembrandt, Thurloe-place, S.W., on Tuesday, Oct. 20th, at 7.30 for 8 P.M. The guests are likely to include Lord Hanworth, Sir John Reith, and Mr. A. P. Herbert.

National Institute for the Deaf.

This institute is equipping a large house, 26, Highbury-quadrant, London, N., to provide for some 20 deaf boys and youths who need a healthy and happy home while going out to their daily work. The new hostel is almost ready for occupation. The address of the institute is 2, Bloomsbury-street, New Oxford-street, W.C.1.

Motor Accidents at Newcastle-on-Tyne.

Between Jan. 1st and August 31st the Victoria Infirmary at Newcastle dealt with 723 motor accident cases. They cost the hospital £1257, and the patients paid £80.

International Society of Medical Hydrology.

The annual meeting of this Society will take place at Amsterdam (American Hotel) from Oct. 31st to Nov. 2nd Discussions will be held on the Influence of Chill in the Causation of Disease (opened by Profs. Schade and van Loghem), and on Factors in Marine Treatment (Prof. Moll and Dr. Häberlin). Arrangements have been made for visits and demonstrations at various clinics and objects of interest in the city. A limited number of places are available for non-members. The Society's office is at 55, Wellington-road, London, N.W. 1.

Tavistock-square Clinic.

At this clinic, 51, Tavistock-square, London, W.C., a course of lectures on Functional Nervous Disorders, for medical practitioners and students, will be held from Nov. 2nd to 14th. The lectures will be given at 4.45, 5.45, and 8.15 P.M. each weekday except Saturday, when there will be demonstrations from 2.30 to 5 P.M. At 6 P.M. on Mondays, from Oct. 12th to Nov. 30th, at Friends House, Euston-road, N.W., Prof. Millais Culpin will lecture on "Nerves"—Ancient and Modern. Tickets for both courses may be had from the hon. lecture secretary at the clinic.

Life Assurance Medicine.

At the sixth International Medical Congress on Industrial Accidents and Diseases, held in Geneva in July, the council [illegible] the request of representatives of 16 countries [illegible] the formation of a special section for life assurance medicine. The countries represented were Austria, Belgium, Czecho-Slovakia, Denmark, France, Germany, Great Britain, Holland, Hungary, Italy, Luxembourg, Norway, Poland, Spain, Sweden, and Switzerland. A sectional executive committee consisting of Dr. Hörnig (Berlin), Dr. Otto May (London), Dr. Goffin (Brussels), Dr. Coert (The Hague), Prof. Romanelli (Rome), Prof. Bergstrand (Stockholm), and Dr. Kaufmann (Zurich) was elected, with Dr. Hörnig as chairman and Dr. Kaufmann as hon. secretary.

Chartered Society of Massage and Medical Gymnastics.

The third annual dinner of the society was held on Oct. 2nd at the Connaught Rooms, when the chair was taken by Mr. R. C. Elmslie. Captain Ian Fraser, who proposed "The Society," spoke gratefully of the privileges offered to blind students during the war. In response the chairman said he considered mechano-therapeutics to be an essential part of medical training, and massage one of the most important of accessory treatments, which he would like to see extended in panel practice. Members of the society who felt they ought to be allowed to give treatment at their own discretion he would remind that when working under a doctor they were relieved of 90 per cent. of responsibility. Miss J. H. Wicksteed proposed "The Guests," giving a special welcome to Mrs. F. L. Dove, one of the founders of the society. In responding Mrs. Ivens-Knowles spoke of the beneficial effects of massage and exercises in obstetric and gynæcological cases, and Mr. Comyns Berkeley expressed his pleasure at coming into touch with the massage world again. Dr. James B. Mennell proposed "The Chairman," who, in replying, announced that Lord Moynihan had accepted the presidency of the society on the retirement of Sir Cooper Perry who, as second founder, had placed massage on its proper footing by securing the Charter.

London School of Hygiene and Tropical Medicine.

A course in tropical hygiene for men and women outside the medical profession proceeding to the tropics, will be given by Lieut.-Colonel G. E. F. Stammers at this School, Keppel-street, Gower-street, W.C., on certain days from Oct. 21st to 30th, at 5 P.M.

Diagnosis and Treatment of Venereal Diseases.

In our issue of Sept. 26th we announced that a course in this subject would shortly be given by the Salford Public Health Department. Owing to the illness of Lieut.-Colonel E. T. Burke, this course has been indefinitely postponed.

Guild of SS. Luke, Cosmas and Damian.

The twenty-first annual general meeting of this guild will be held in the Cathedral Hall, Archbishop's House, Westminster, on Sunday, Oct. 18th, after High Mass in the cathedral, which will be celebrated at 10.30 A.M. The guild has now 560 members. The hon. secretary is Dr. W. J. O'Donovan.

Glasgow Homœopathic Hospital.

The Houldsworth Homœopathic Hospital having become inadequate to the demands upon it, Glen Tower, a large private house in the west end of the city, has been acquired and reconstructed, and was opened last week by the Earl of Home. The old building will be used for dispensary services.

Hospital Direction Lights.

At St. Mary's Hospital, Paddington, a "guide light indicator" has been installed at the entrance for the guidance of patients and visitors. Different coloured lights point the way to the various departments, and also to the points where patients may pay contributions.

A Children's Ward.

The only open fire in the reconstructed Victoria Memorial Jewish Hospital, at Cheetham, Manchester, will be in the new Princess Elizabeth children's ward, which is to be as much like a nursery as possible. The china will be adorned with nursery rhymes and pictures of teddy bears; the coverlets, curtains, and nightgowns will be embroidered in orange and green, and a "cheerful fresco" will run round the walls.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED SEPT. 26TH, 1931.

Notifications.—The following cases of infectiou disease were notified during the week: Small-pox 45 (last week 45); scarlet fever, 1659; diphtheria 834; enteric fever, 55; pneumonia, 722; puerpera fever, 36; puerperal pyrexia, 120; cerebro-spina fever, 17; acute poliomyelitis, 10; acute poli encephalitis, 1; encephalitis lethargica, 10; continua fever, 1; dysentery, 12; ophthalmia neonatorum 100. No case of cholera, plague, or typhus fever wa notified during the week.

The number of cases in the Infectious Hospitals of th London County Council on Sept. 29th–30th was as follows Small-pox, 63 under treatment, 4 under observation (last week 55 and 5 respectively); scarlet fever, 1313; diphtheria 1377; enteric fever, 16; measles, 100; whooping-cough 355; puerperal fever, 7 (plus 4 babies); encephalitis lethargica, 215; poliomyelitis, 8; "other diseases," 11 At St. Margaret's Hospital there were 15 babies (plus 11 mothers) with ophthalmia neonatorum.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 2 (0) from enteric fever, 5 (1) from measles, 5 (0) from scarlet fever, 20 (7) from whooping-cough, 19 (4) from diphtheria, 51 (13) from diarrhœa and enteritis under two years, and 28 (6) from influenza. The figures in parentheses are those for London itself.

The fatal cases of enteric fever outside London occurred at Burton-on-Trent and Newcastle-on-Tyne. Four deaths from whooping-cough were reported from Liverpool, 2 each from Manchester and Newcastle-on-Tyne. Liverpool reported 4 deaths from diphtheria, Hull 3, Wolverhampton 2. Diarrhœa was credited with 14 deaths at Liverpool, 6 at Birmingham, and 3 at Sunderland.

The number of stillbirths notified during the week was 252 (corresponding to a rate of 39 per 1000 births), including 34 in London.

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

Monday, Oct. 12th.—5 P.M., United Services. Lieut.-Colonel E. M. Cowell: The Complete Military Surgeon. Presidential Address. A cinematograph demonstration of a Red Cross Air Ambulance will follow.

Tuesday.—5 P.M., Therapeutics. Dr. E. P. Poulton: Obesity. Presidential Address. A discussion will follow.

Thursday.—5 P.M., Dermatology. (Cases at 4 P.M.) Dr. J. D. Rolleston: 1. Striæ Atrophicæ on the Back, following Typhoid Fever. Dr. W. N. Goldsmith: 2. Case for Diagnosis. Diffuse Symmetrical Granuloma. Other Cases will be shown. 8 P.M., Neurology. (Cases at 7.45 P.M.) Clinical Meeting at the Hospital for Epilepsy and Paralysis, Maida Vale, W. 9.

Friday.—7.30 P.M. for 8 P.M., Physical Medicine, Radiology. The first Meeting of these Sections will take the form of a dinner which will be held at the Dorchester Hotel, Park Lane, W. 8.15 P.M., Obstetrics and Gynæcology, Medicine, Psychiatry. Special Discussion on Medical Indications for Premature Termination of Pregnancy. Openers: Mr. Beckwith Whitehouse and Mr. Eardley Holland (Obstetrics); Dr. L. S. T. Burrell, Dr. T. F. Cotton, and Dr. G. Graham (Medicine); Dr. G. W. B. James and Dr. H. Yellowlees (Psychiatry). Other speakers will take part.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

Monday, Oct. 12th.—8 P.M., Annual General Meeting.—8.30 P.M., Mr. Herbert Tilley: The Laryngoscope in Medicine, some reflections and recollections. (Presidential Address.)

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, Keppel-street, W.C.

Thursday, Oct. 15th.—8.15 P.M., Mr. W. H. Gray, M.Sc., and Dr. J. W. Trevan: Experiments on Antimony Compounds used in the Treatment of Bilharzia and Kala-azar.

PADDINGTON MEDICAL SOCIETY.

Tuesday, Oct. 13th.—9 P.M. (at the Great Western Royal Hotel, Paddington), Discussion on Vertigo, to be opened by Dr. Wilfred Harris, Mr. M. E. Vlasto, and Mr. F. A. Juler.

SOCIETY FOR THE STUDY OF INEBRIETY.

Tuesday, Oct. 13th.—4 P.M. (Friends' House, Euston-road, N.W.), Viscount Brentford: How the Alcohol Question concerns the Duties of the Home Office. Fourteenth Norman Kerr Memorial Lecture.)

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, London, W.

Monday, Oct. 12th, to Saturday, Oct. 17th.—Prince of Wales's Hospital, Tottenham, N. Post-graduate course in General Medicine and Surgery. Daily, 10.30 A.M. to 5.30 P.M., Demonstrations, Operations, Lectures.—St. John's Hospital, Leicester-square, W.C. Course in Dermatology every afternoon, Clinics at 2 P.M. and 6 P.M., and lectures on Tues. and Thurs. at 5 P.M.—National Hospital for Diseases of the Heart, Westmoreland-street. All day course in Diseases of the Heart, Demonstrations, and Lectures.—Chelsea Hospital for Women, Arthur-street, S.W. Course in Gynæcology for two weeks, occupying most mornings and afternoons.—Hospital for Tropical Diseases, 25, Gordon-street, W.C. All day course in Tropical Medicine.—Central London Throat, Nose, and Ear Hospital, Gray's Inn-road, W.C. All day course in Diseases of the Ear, Nose, and Throat, continuing for another three weeks.—Medical Society of London, 11, Chandos-street, Cavendish-square, W. M.R.C.P. evening lectures at 8.30 P.M. as follows: Mond., Dr. L. J. Witts, Gastric and Duodenal Ulcer. Wed., Dr. R. D. Lawrence: Diabetes. Free lecture at 4 P.M. by Mr. W. Sampson Handley on Cancer.—St. Mark's Hospital, City-road. Post-graduate free demonstration by Mr. J. P. Lockhart-Mummery at 2.30 P.M. on Mon.—Infants Hospital, Vincent-square. Free post-graduate demonstration, the Management of Difficult Cases of Feeding, by Dr. Eric Pritchard, on Fri. from 3.30 P.M. to 4.30 P.M.

UNIVERSITY COLLEGE, Gower-street, W.C.

Monday, Oct. 12th.—5 P.M., Dr. R. J. Lythgoe: Physiology of the Sense Organs.

Tuesday.—5.30 P.M., Prof. Karl Bühler: Theory of Language and Psychology of Speech.

Wednesday.—5.30 P.M., Mr. J. Needham: Speculation, Observation, and Experiment as illustrated by the History of Embryology.

Friday.—Mr. L. E. Bayliss: Respiratory Functions of the Blood.

NATIONAL HOSPITAL, Queen-square, W.C.

Monday, Oct. 12th.—2 P.M., Dr. Riddoch: Out-patient Clinic. 3.30 P.M., Dr. Purdon Martin: Acute Infections of the Central Nervous System. (2).

Tuesday.—2 P.M., Dr. Walshe: Out-patient Clinic. 3.30 P.M., Dr. Adie: Oculomotor Palsies.

Wednesday.—2 P.M., Dr. Martin: Out-patient Clinic.

Thursday.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Dr. Gordon Holmes: Disturbances of Vision due to Cerebral Lesions. (2).

Friday.—2 P.M., Dr. Adie: Out-patient Clinic. 3.30 P.M., Dr. Greenfield: The Hæmato-encephalic Barrier.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

Monday, Oct. 12th.—10 A.M., Gynæcological Wards; Genito-urinary Operations; Skin Department. 11 A.M., Surgical Wards. 2 P.M., Surgical Wards; Medical, Surgical, Eye, and Gynæcological Out-patients.

Tuesday.—9.30 A.M., Operations. 10 A.M., Medical Ward Demonstration; Dental Department. 11 A.M., Throat Operations. 11.30 A.M., Surgical Demonstration. 2 P.M., Operations; Medical, Surgical, and Throat Out-patients.

Wednesday.—10 A.M., Medical Wards; Children's Medical Out-patients. 2 P.M., Medical, Surgical, and Eye Out-patients. 2.30 P.M., Gynæcological Operations. 4.45 P.M., Venereal Diseases Demonstration.

Thursday.—10 A.M., Neurological Department. 11.30 A.M., Fracture Demonstration. 2 P.M., Medical, Surgical, Eye, and Genito-urinary Out-patients. 2.30 P.M., Operations.

Friday.—10 A.M., Medical Wards, Skin Department, Dental Department. 2 P.M., Medical, Surgical, and Throat Out-patients. 2.30 P.M., Operations.

Saturday.—9 A.M., Throat Operations. 10 A.M., Medical Wards, Surgical Out-patients; Children's Medical Out-patients.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.

Wednesday, Oct. 14th.—4 P.M., Mr. D. H. Patey: Pathology and Diagnosis of Pre-carcinomatous and Early Conditions of Cancer of the Breast.

KING'S COLLEGE, Strand, W.C.

Tuesday, Oct. 13th.—5 P.M., Mr. J. W. Pickering, D.Sc.: Blood Plasma and Platelets. (Second lecture.)

Thursday.—5 P.M., Mr. J. A. Hewitt, D.Sc.: Metabolism of the Carbohydrates and Fats.

LONDON SCHOOL OF ECONOMICS, Houghton-street, W.C.

Wednesday, Oct. 14th.—5 P.M., Prof. R. Stenhouse Williams: Production, Distribution, and Value of Milk. (First of three lectures.)

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL, Gower-street, W.C.

Tuesday, Oct. 13th.—5.15 P.M., Prof. J. G. Ledingham: Resistance to Infection, Natural and Induced. (Free Lectures in Pathology.)

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL, Denmark Hill, S.E.

Thursday, Oct. 15th.—9 P.M., Mr. St. J. D. Buxton: Modern Methods of Treating Common Fractures.

ST. MARK'S HOSPITAL, City-road, E.C.

Thursday, Oct. 15th.—4.30 P.M., Dr. C. Dukes: Precancerous Lesions of the Alimentary Tract.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.

Wednesday, Oct. 14th.—4 P.M., Sir Ernest Graham-Little: Health of the London Citizen.

BRITISH INSTITUTE OF RADIOLOGY, 32, Welbeck-street, W.

Thursday, Oct. 15th.—8.30 P.M. Dr. G. Simon: Rationalisation of Diagnostic X Ray Exposures. Mr. B. W. Anderson: Use of X Rays in the Study of Pearls.

Friday.—1 P.M. Visit to radiological department of Londno Hospital.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

Tuesday, Oct. 13th.—5 P.M., Dr. W. Griffith: Principles of Treatment.

Thursday.—5 P.M., Dr. I. Muende: Pathology Demonstration.

LONDON HOSPITAL MEDICAL COLLEGE.

Wednesday, Oct. 14th, to Saturday.—Postgraduate for former Students.

Thursday, Oct. 15th.—4.15 P.M., Prof. A. J. Hall: Chronic Epidemic Encephalitis. (Schorstein lecture.)

LONDON SCHOOL OF HYGIENE.

Tuesday, Oct. 13th, and following Thursday and Friday.—5 P.M., Sir George Newman: Rise of Preventive Medicine. (Heath Clark lectures.)

HOSPITAL FOR EPILEPSY AND PARALYSIS, Maida Vale, W.

Thursday, Oct. 15th.—3 P.M., Dr. Russell Brain: Epilepsy.

TAVISTOCK-SQUARE CLINIC FOR FUNCTIONAL DISORDERS, 51, Tavistock square, W.C.

Monday, Oct. 12th.—6 P.M. (at the Friends' House, Euston-road, N.W.), Prof. Millais Culpin: The Meaning of *Nervous* (first of a series of eight lectures on Nerves—Ancient and Modern).

ANCOATS HOSPITAL, Manchester.

Thursday. Oct. 15th.—4.15 P.M., Dr. G. J. Langley: Hyperpiesia (Post-graduate Lecture).

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSE.

TUESDAY, Oct. 13th.—4.15 P.M., Dr. Crighton Bramwell: Treatment of Hyperthyroidism.

FRIDAY.—4.15 P.M., Dr. P. B. Mumford: Demonstration of Skin Cases.

MANCHESTER VICTORIA MEMORIAL JEWISH HOSPITAL, Elizabeth street, Manchester.

WEDNESDAY, Oct. 14th.—4.30 P.M., Mr. S. Kropman: The Relation of Dental Disease to Systemic Conditions.

Appointments

BROWN, D. L., M.B., Ch.B. Staff., has been appointed Superintendent of the Edmonton and Enfield Isolation Hospital.

HARPER, J. S., M.B., Ch.B. Aberd., Assistant M.O. of Schools, Essex County Council.

THOMAS, C. J., L.R.C.P. Lond., M.R.C.S., Deputy Superintendent of Whitlingham Mental Hospital.

City of London Maternity Hospital, City-road, E.C.: BARBER, A., L.R.C.P. Lond., M.R.C.S., Resident Medical Officer; and SKYRME, A. D., L.R.C.P. Lond., M.R.C.S., Assistant Resident Medical Officer.

Vacancies

For further information refer to the Advertisement columns.

Aylesbury, Royal Buckinghamshire Hospital.—Res. M.O. At rate of £200.

Bedford County Hospital.—H.S. and Asst. H.S. At rate of £175 and £130 respectively.

Birmingham, Little Bromwich Isolation Hospital, &c.—Med. Supt. £1000.

Bradford, Royal Eye and Ear Hospital.—Jun. H.S. £150.

Brentwood, Essex, High Wood Hospital for Children.—Asst. M.O. £350.

Bristol Eye Hospital.—Res. H.S. £150.

Bristol Royal Infirmary.—H.S. and H.P. Each £60.

Cheadle, Cheshire, Barnes Convalescent Hospital.—Res. M.O. £250.

Colchester, Essex County Hospital.—Asst. H.S. and Reg. £120.

Derbyshire County Council.—M.O. £600.

Ealing, King Edward Memorial Hospital.—Hon. Consulting Dermatologist.

Edgware, Redhill County Hospital.—Res. Asst. M.O. £400.

Evelina Hospital for Children, Southwark, S.E.—Cas. and Out-Patient O. At rate of £120.

Glasgow Corporation, P.H. Dept.—Jun. Asst. for Bacteriological Laboratory. £350.

Glasgow Eye Infirmary.—Res. H.S. and Res. Asst. H.S. £250 and £150 respectively.

Godalming, Surrey, King George V. Sanatorium.—Two H.P.'s. £80.

Great Yarmouth General Hospital.—H.S. £140.

Grove Park Hospital, Lee, S.E.—Asst. M.O. £350.

Hampstead General and N.W. London Hospital, Haverstock Hill, N.W.—H.S. At rate of £100.

Hospital for Consumption and Diseases of Chest, Brompton.—Asst. Res. M.O. £150. Also H.P. and Jun. H.P. Each £50 for six months.

Hospital for Sick Children, Great Ormond-street, W.C.—Med. Reg. £250.

Huddersfield, West Riding Mental Hospital, Storthes Hall, Kirkburton.—Asst. M.O. £400.

Kingston-upon-Hull, Anlaby-road Institution.—Two Asst. M.O.'s. Each £300.

Kingston-upon-Hull, City and County of.—Asst. M.O.H. £600.

Leamington Spa, Warneford General Hospital.—Res. H.S. and H.P. Each £165.

London Temperance Hospital, Hampstead-rd., N.W.—Res. M.O. and Cas. O. At rate of £175 and £120 respectively.

Lowestoft, St. Luke's Hospital.—Asst. M.O. £350.

Manchester Northern Hospital for Women and Children, Park Place, Cheetham Hill-road.—Sen. and Jun. H.S. £130 and £100 respectively.

Manchester Royal Eye Hospital.—Jun. H.S. £120.

Manchester Royal Infirmary, Roby-street.—H.S. At rate of £100–£200.

Manchester, St. Mary's Hospital.—Res. Obstet. O. for Whitworth-street West Hospital and Res. Surg. O. for Whitworth Park Hospital. Each £175. Also two H.S.'s for Whitworth-street West Hospital. Each at rate of £50.

Margate and District General Hospital.—Res. M.O. £150.

Newcastle-on-Tyne, Royal Victoria Infirmary.—Hon. Asst. to Skin Dept.

Norwich, Norfolk and Norwich Hospital.—Cas. O. and H.S. £120.

Prince of Wales's General Hospital, Tottenham, N.—Sen. and Jun. H.P.'s and H.S.'s. At rate of £120 and £90 respectively.

Queen's Hospital for Children, Hackney-road, E.—Surgeon to Ear, Nose, and Throat Department.

Reading, Royal Berkshire Hospital.—Cas. O. Radiological H.S. and Res. Anæsthetist and H.S. for Blagrave Branch Hospital. All at rate of £150.

Rochester, St. Bartholomew's Hospital.—H.S. At rate of £175.

Royal Eye Hospital, St. George's Circus, Southwark, S.E.—H.S. and Asst. H.S. At rate of £150 and £100 respectively.

Royal National Orthopædic Hospital, 234, Gt. Portland-street, W.—Four Surg. Regs. Each £105.

Royal Northern Hospital, Holloway, N.—H.P. At rate of £70.

Ryde, Royal Isle of Wight County Hospital.—Vacancy on th Hon. Med. Staff.

Samaritan Free Hospital, Marylebone-road, N.W.—H.S. At rate of £100.

Sheffield Royal Hospital.—Ophth. H.S. Also Anæsthetist. £120 and £80 respectively.

Sheffield Royal Infirmary.—H.S. and 2nd Asst. Cas. O. A rate of £80.

Southport General Infirmary.—Jun. H.S. £150.

Stockport County Borough.—M.O.H. £1100.

Stoke-on-Trent, North Staffordshire Royal Infirmary.—Asst. H.P £125.

Sutton and Cheam New Hospital.—Res. M.O. At rate of £20

Sutton, Surrey, Downs Hospital for Children.—Asst. M.O. £350

West London Hospital, Hammersmith, W.—Hon. Asst. Surg. t Genito-Urinary Dept.

Western Ophthalmic Hospital, Marylebone-road, N.W.—Ju Non.-Res. H.S. At rate of £100.

Winchester, Royal Hampshire County Hospital.—H.S. At ra of £100.

The Chief Inspector of Factories announces a vacancy for Certifying Factory Surgeon at Barking (Essex).

Births, Marriages, and Deaths

BIRTHS.

MCFADDEN.—On Sept. 28th, at College-gardens, Belfast, t wife of George D. F. McFadden, F.R.C.S., of a son.

NELSON.—On Oct. 4th, at Urchfont, Orsett, Essex, the wi of Dr. F. A. M. Nelson, of a son.

MARRIAGES.

BROWN—FOSTER.—On Oct. 1st, at Holy Trinity, Lyonsdow Alfred Brown, M.A., M.D., to Florence Louisa, daught of the late Benjamin Foster, of Forest Hall, Northumb land.

DEATHS.

COBBOLD.—On Oct. 4th, following an operation, Charles Spen Cobbold, M.D., of Camden-crescent, Bath, aged 78.

DAVIES.—On Sept. 29th, in London, Dr. Herbert Davies, M. B.S. Lond., D.P.H. Lond., M.O.H. for Breconshire.

ECCLES.—On Oct. 4th, at "Tregorland," near St. Maw Herbert Annesley Eccles, M.D. Lond., late of Up Norwood, aged 62 years.

MORGAN.—On Sept. 30th, at Gwendolen-avenue, Putn Colonel Frederick James Morgan, C.M.G., C.B.E., l R.A.M.C.

MURRAY.—On Oct. 4th, at Apsley, Greek-street, Stockp Robert Alexander Murray, M.D., O.B.E., J.P., aged 73.

SMITH.—On Sept. 30th, Gerard Henry Smith, M.R.C.S., L.S. of Blackheath, Kilburn, and Hobart, Tasmania, in 78th year.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notice Births, Marriages and Deaths.

PRESENTATIONS TO MEDICAL MEN.—Upon retirement, after 23 years' service, from the position medical superintendent of the Enfield and Edmonton jo isolation hospital board, Dr. R. Haldane Cook has b presented by the staff with a standard lamp and a screen After 41 years' practice in the Fletching district of Sus Dr. Harry Graveley, who has lately retired, has b presented with an illuminated address, a cheque for guineas, and an album containing the names of no fe than 940 subscribers, representative of all the paris over a wide area. The presentation took place on the wedding day of Dr. and Mrs. Graveley.

MERSEYSIDE HOSPITALS COUNCIL.—The thi annual report of this Council covers the year 1930. shows that the penny-in-the-pound fund produced £15,0 more than in 1929, notwithstanding severe industr depression, and that £101,000 was distributed to the volu tary hospitals. This sum sufficed, however, to pay o 70 per cent. of the actual cost of maintaining contribut and their dependants in the hospitals. At the end of 19 there were 255,680 contributors, an increase of over 38,00 but there are still many wage-earners outside the schem The existence of the fund has encouraged the associat hospitals to undertake improvements and extensions whi have cost £227,000 in the last three years, the result which is that in 1930 their maintenance accounts we increased by nearly £37,000, as compared with 1927 wh the contributory scheme was launched. The report, whi is signed by Lord Cozens-Hardy, the chairman of t Council, records that in 1929 the hospitals spent for ordina expenses and minor extensions £98,000 received fro legacies and special gifts, and points out that "if t voluntary hospitals finances were in a really healthy cond tion it would not be necessary to use legacies for meeti current expenditure."

ADDRESSES AND ORIGINAL ARTICLES

SOME PRINCIPLES IN THE SURGERY OF THE PHARYNX.*

BY WILFRED TROTTER, M.S. LOND.,
LL.D. EDIN., F.R.S.,
SURGEON TO UNIVERSITY COLLEGE HOSPITAL.

WHEN a practical art is growing with health and vigour it gathers a rapidly accumulating store of technical detail which tends to become the chief task of the student to learn and of the practitioner to keep up with. This manifestation of growth is in itself natural and in no way to be deplored. It should however remind us of the need for a periodical return to the consideration of the principles on which the whole structure of the art is founded. Only in this way is it possible to retain our confidence that the growth of detail has not become in any way unduly exuberant or followed the tendency inherent in all successful techniques and become an end in itself.

These elementary reflections are by common consent particularly appropriate to the art of surgery. No art has shown itself more capable of vigorous and effective growth, none has developed a greater and more rapid accumulation of detail, and of no technique can it be said with greater truth that the practice of it should never become an end in itself. Such considerations apply to the surgery of the pharynx not less than to any other branch, so that the problems I propose to deal with have a general as well as a special interest and form a valuable link connecting a rather intricate and specialised department with the general body of knowledge.

The life of modern surgery has now lasted for about half a century. It began with the Listerian technique for the prevention of external wound infections from which it derived a truly remarkable impulse of growth. That impulse was no doubt by far the most fruitful that surgery had ever received, and was indispensable to the further progress of an art which was indeed at that time actually threatened by decay and despair. Powerful however as was the Listerian inspiration, it was in essence a clue to knowledge rather than a revelation of all surgical truth. Progress necessarily still remained a matter of evolution and of ground gained step by step, but it became far more rapid and more rational than it had ever been before. This new quality has given to the surgical history of the last 50 years a logic and a sequence that makes an interesting spectacle of the road the art has travelled during that time to reach its present considerable efficiency.

Conditions of Advance in Surgery.

When we survey the incidents of that road we find that the effectual entry of surgery into a fresh region of the body, while it of course has primarily depended on the power to exclude external infections, has also been dependent on the satisfaction of certain other requirements. These requirements comprise knowledge bearing on the part in question from different aspects which may be grouped in three classes.

(*a*) *Anatomical and physiological knowledge* of the part in question is necessary to allow the surgeon access with the least disturbance and to enable him to carry out his task with as little effect on function as may be. Since it gives to the inventiveness of the surgeon its sole trustworthy starting point, effectiveness in this respect is the most obvious and elementary requirement of any new departure. As a fact of history however, the part it has played has not always been equally great and equally early. The surgery of the central nervous system was from the very first intimately connected with anatomical and physiological principle, whereas abdominal surgery was far advanced before it was seen to be worth while to give close attention, for example, to the anatomy and physiology of the abdominal wall and the viscera.

(*b*) The *control of infective material* normally present in a region has taken a large part in certain great surgical advances. It was conspicuous in the second expansive period of abdominal surgery when the ability to excise and suture the intestine was acquired. Such success as has been obtained with regard to this requirement has been almost entirely a surgical achievement and has owed remarkably little to the help of the pathologist or bacteriologist.

(*c*) The *local pathology* of a region provides the final requirement that must be met before surgery is capable of free expansion there. The surgery of a given region may be in possession of satisfactory means of access to it and yet be incapable of development unless the surgeon has some fundamental understanding of the diseases he proposes to attack there. The evolution of the great branches of surgery has so frequently illustrated this principle as scarcely to call for the mention of specific cases.

When the Listerian technique freed surgery from the danger of external infection an immediate harvest of successful treatment was ready to be gathered. This harvest lay entirely in those fields where already some progress had been made in meeting the requirements we have specified as essential for satisfactory surgical progress. Accidental wounds and compound fractures at once became subject to precise and reasonably safe treatment, open operations for the removal of many growths, for the correction of deformities, for the cure of diseases of bones and joints became feasible and satisfactory. Almost none of this immediate harvest came however from the great regions of the abdomen, the chest, the central nervous system. Here the essential requirements for progress were not yet met, and advance must depend once more on a relatively slow process after detailed preparation of the ground, though now of course, the whole prospect had become more hopeful and the climate as it were more favourable to growth than ever before. It is impressive to recall that even Lister himself during all the years of his use of the antiseptic method made no attempt to enter on these new fields, not even on the easiest and most obvious of all—the abdomen.

Evolution of Surgery of the Pharynx.

The major surgery of the pharynx, narrow and sharply limited as its field is, illustrates in the clearest way how surgical progress is governed by the satisfaction of the requirements we have specified as necessary for sound progress. This small region of the body is the frequent seat of diseases that show the ills of the flesh at their worst, for they are repulsive, painful, long drawn out, and mortal. Yet the surgery of it failed entirely to contribute anything to the first harvest of the Listerian inspiration, and it is only a slight exaggeration to say that for the first 30 years of modern surgery that of the pharynx showed little sign that the dark ages of surgery were at an end. The reasons for this backwardness are obvious enough and we need refer to only a few of them. The part is difficult to examine, so that the natural history of its diseases was for a long time but vaguely known; it is difficult of access, so that there was no natural method by which the surgeon could expose it and become familiar with the early stages of its morbid conditions as he did so soon in the abdomen; it is infested by infective material which is apt to cause violent and uncontrollable inflammation of the tissues of the neck and thorax; it is the seat of concentrated and important functions, so that large destructive operations can be carried out only at the expense of repulsive and often intolerable mutilation. It is not therefore surprising that not much more than 20 years ago, at a time when abdominal surgery was in the full tide of success, when the surgery of the central nervous system was well under way, and that of the chest already launched, the simplest epithelioma *of the lower pharynx meant a certain and painful* death, and so essentially trivial an oddity as a pharyngeal pouch meant slow starvation or a rarely risked and critical operation. That this small wild tract of the body has been put in the way to be tamed is the expression of the fact that the requirements necessary for the sound advance of surgery in any region have been or are being in their degree fulfilled. Such progress as has been made is chiefly due to certain definite improvements in knowledge, none of which by itself would have been of decisive value. We now have satisfactory methods of examining the pharynx, and of surgical access to it, we know a good deal about the infectivity of the pharyngeal contents and how it may be controlled, we know when plastic reconstitution of the pharynx is necessary and what can be done with it, and we know enough about the natural history and clinical types of pharyngeal malignant disease to give rational direction to our attack upon it.

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* An address delivered at the Central London Throat Hospital on Oct. 9th.

Having attempted some orientation of the surgery of the pharynx in relation to the evolution of the art in general, we may now pass on to consider in broad outline the principles on which the practice of this special branch depends. Before doing so however, we may usefully give a few words to defining the limits of our task. The lower pharynx with which we are to be chiefly concerned may be defined roughly as including the epiglottis and extending downwards to the œsophagus. It forms a region which for clinical purposes is conveniently considered by itself and which is concerned in the most interesting problems of pharyngeal surgery. The major surgery of the tract thus limited has only two morbid conditions to deal with—the squamous epithelioma and the pharyngeal pouch. The former is, of course, the more important, as it is by far the more common and by far the more difficult to deal with. The latter will be referred to only in passing, since the problems connected with its treatment may fairly be regarded as solved. A further exercise in preliminary definition is rendered necessary by the ambiguous position occupied at the moment by radiotherapy in the treatment of malignant disease of the pharynx.

Radiotherapy in Malignant Disease of the Pharynx.

It is commonly supposed that the use of radium has greatly simplified the treatment of epithelioma of the pharynx. This supposition is not true. Radium has given us a new and very powerful addition to our means of attack, but so far from simplifying the attack has made it more than ever dependent on experienced judgment and expert handling. It is possible even that up to the present time the total results as to cure or notable periods of freedom from recurrence are actually worse for the introduction of radium, since it seems likely that many patients who might have had a good chance of cure by operation in competent hands have had their chance frittered away in ineffective radium treatment. If this is so it is, of course, only a transient phase, for a proper appreciation of the technical requirements of sound radium treatment is already replacing the cruder view and must in time result in the full benefits of radium being made manifest. At present then it must be insisted on that radium has brought about no notable simplification in the treatment of pharyngeal growths. So far indeed the chief hope of simplification it has given us is that it may render unnecessary the rather elaborate plastic operations for reconstituting the pharynx and œsophagus that are necessary after excision of the post-cricoid *carcinoma.*

Problem of Surgical Access to the Lower Pharynx.

Some 20 years of experience have established the operation of lateral pharyngotomy by the trans-thyroid route as a method of general usefulness. Its chief characteristic features are: (*a*) the isolation of the area of gland dissection from the visceral compartment of the neck by suture of the sterno-mastoid to the prevertebral muscles; (*b*) the removal of the thyroid ala and the great cornu of the hyoid before the pharynx is opened, so that the tumour can be felt through the intact pharyngeal wall and the necessary incision in the latter properly planned; (*c*) that in early cases after the excision of the growth the wall of the pharynx can be closed and immediate reunion of it obtained; (*d*) that it can be combined with the plastic procedure necessary after excision of post-cricoid and posterior wall tumours.

This operation, apart from its usefulness in actual treatment, has by giving us an adequate method of displaying and exploring the interior of the pharynx contributed indirectly to our knowledge of the clinical types, sites of origin, and modes of spread of pharyngeal epithelioma. It has also aided in establishing the fact that every excision of the posterior pharyngeal wall or of the post-cricoid pharynx must be immediately restored by implantation of a skin flap.

Problem of Control of Infection.

The mortality of operations for malignant disease of the pharynx is considerable, whether the actual treatment of the growth is by excision or radium. The chief factor in this mortality is infection either of the lungs or of the extra-pharyngeal tissues, but in any case due to access of the pharyngeal contents to the infected part. The actual conduct of the operation can undoubtedly reduce the risk of such infections, but it cannot ever exclude it with certainty. While therefore every step of the operation will be oriented towards the limitation of infection, other means must be found of a more general usefulness if the mortality is to be kept below a level prohibitively high.

The infection that follows contamination of a wound by pharyngeal mucus has clinical features and a clinical course that are very characteristic. It is a progressive sloughing cellulitis, non-suppurative for several days, accompanied by moderate fever for eight to ten days when suppuration and the separation of sloughs begin. It is intolerant of the least restraint of drainage and always involves a risk of serious secondary hæmorrhage. Clinical experience proves that the cause of this characteristic infection is always present in those who have teeth whether the teeth are many or few, or with or without obvious disease; it also proves that in the edentulous the cause of this infection tends to disappear or to be greatly attenuated. Thus, in the aggregate the risks of major operations on the pharynx are very greatly reduced in the edentulous, and there is no general precaution in the preparation of a patient for such an operation that can compare in value with a clearance of the mouth and a delay until the gums are soundly healed.

There are few facts of clinical surgery more firmly established than this relation between the presence of teeth and the liability to sloughing infections of wounds to which the oral or pharyngeal mucus has access; there is certainly none so unquestionably true that is so little valued and acted upon. So much is this the case that it is necessary to speak of the subject with emphasis and without ambiguity. It is very doubtful whether a major operation on the pharynx is ever justifiable in any but an edentulous patient. In the edentulous the dreaded excision of a pharyngeal pouch becomes trivial. After clearance of the mouth I have known ulcerated epitheliomas to heal over, and I have seen an apparently inoperable epithelioma become operable and be cured by operation. This question is quite different from that of clearing the mouth to produce an effect on some general or distant disease. We are not concerned with anything so problematical but with the attempt to get the pharynx into a condition as near surgical cleanliness as we can, and no other precaution for such a purpose has any claim to compare with this one.

Finally, surprising as it may be, it is necessary to lay stress on the fact that if the relative sterility of the mouth is a most important preliminary to any major pharyngeal operation, it is doubly important if radium is to be used. It is perhaps because radium is sometimes regarded as having simplified the treatment of malignant disease of the pharynx that there is a tendency to disregard the stringent necessity for every precaution against infection where it is used. If it is questionable whether any major operation on the pharynx should be done except in the edentulous there can be no doubt that if radium is to be used this precaution is essential to reasonable safety.

Problems of Local Pathology.

It is of but little use to be able to obtain access to a given region of the body with whatever neatness and safety, if we do not know what to do when we get there; and no where is this familiar warning more apt than in the surgery of the pharynx. A knowledge of the natural history of the local diseases—in this case chiefly of the squamous epithelioma—is therefore an essential part of the surgeon's equipment. Our knowledge of the epithelioma as found in the lower pharynx has gathered rapidly since the methods of operative exposure have been put on a sound footing. We now know that it has favourite and characteristic sites of origin, that it appears in types of different malignancy, that it has characteristic modes of spread. Experience has shown that there are cases clinically formidable that lend themselves to easy treatment, and cases clinically mild that are beyond the reach of operation. One of the most encouraging gifts of experience has been the frequency of growths of the lateral wall and of the aryepiglottic fold of a fungating semi-pedunculated type that give excellent results to operative treatment. On the whole it is perhaps nearly true to say that if the lower pharynx were as accessible as the lip, the prognosis of operative treatment of its epitheliomas would probably be in about the same class. Most early cases therefore can be undertaken with reasonable optimism.

A second topic of local pathology that needs a short mention is the question of lymphatic gland infection. When the primary growth is definitely to one side of the middle line a unilateral gland dissection is adequate; this should be done in one operation with the treatment of the primary growth. In my experience the presence of actually palpable moderately enlarged glands on the same side as the tumour does not darken the prognosis so much as it seems commonly regarded as doing.

Our final theme under this heading must be the question how local knowledge of pharyngeal epitheliomas indicates that the actual attack on the growth itself should be made.

The surgery of the pharynx is rather more fortunately placed in this regard than is that of the mouth and jaws, for it is less embarrassed by classical operations inherited from a period of surgery essentially pre-modern. These time-honoured procedures, such as excision of half the tongue, of the whole tongue, of the upper jaw, are primarily of anatomical designing, invented because they were easy to do and not because they were ideally suited to the treatment of any given disease. There is something hostile to the whole spirit of modern surgery in these formal amputations and excisions. Their anatomical design necessarily makes them tend to be unduly mutilating on the one hand, and insufficiently radical on the other. They contrast unpleasantly with what should be our ideal, a procedure closely adapted to the disease in every case and designed to extirpate an individual example of a pathological condition and that alone.

The only legacy of the past with which the modern surgery of the pharynx has to contend is the operation of formal laryngectomy, which is sometimes still used in the treatment of pharyngeal growths arising near the larynx. It is an unfortunate circumstance that this operation is extremely easy to practise, so that there is a tendency for its small legitimate field to be extended unduly. To deal with small juxtalaryngeal growths of the pharynx by a formal laryngectomy is to inflict a serious mutilation without necessity, to sacrifice the advantages of a full preliminary exploration, and very often to do an inadequate removal of the actual growth.

It must be laid down then that the first step in the actual attack on the growth itself must be proper exposure and exploration of the pharynx. This is done at first before the pharynx is opened, because through its thin wall the main features of the site, the size, and extensions of the growth can usually be estimated in broad outline. This procedure is of critical importance, for it will determine the choice that is to be made among three main lines of policy.

(1) If the growth is felt to be small, localised, and movable, the pharynx should be opened, the growth excised, and the pharynx wall sutured. There can be little doubt that at the present time in this class of case straightforward excision gives a good prospect of cure and a better one than is offered by radium.

(2) If the growth is at the opposite extreme of extent and is thus manifestly inoperable, the best

treatment is probably the application of radium without opening the pharynx.

(3) If the growth is of intermediate extent, the decision as to the best treatment will usually have to be postponed until the pharynx has been opened and a more exact examination made. Whether excision or radium be finally decided on, a temporary fistula will have to be established by suturing skin and mucous membrane together.

Prospects of Surgery of the Pharynx.

Since we are here expressly concerned solely with principles I have avoided all questions of operative technique. They are concerned with a different aspect of the subject and can be dealt with usefully only in great detail. We may, however, without leaving the more general aspect of the subject, consider very shortly in conclusion the future prospects of the surgery of pharyngeal malignant disease.

We have seen that there is reason to regard this limited but important branch of surgery as well grounded and therefore capable of expansion. It is still, it must be acknowledged, at a stage in which the surgeon has to console himself for the moderate number of his successes by their brilliant quality, for success means cure without mutilation or disability. Thus, for example, in the first case, and also in the most desperate on which I ever used the transthyroid operation, the patients both survive without recurrence, the one after over 20 years, the other after six. In spite of the testimony of this latter case however, and a few others of almost the same severity, it is probable that the very large excising operations will in future be used only when a very experienced judgment can detect the favourable chance in the very unpromising clinical picture. For the cases that formerly could be dealt with only by these heroic operations, to some extent we already have, and certainly in the future shall have, a much better resource in the expert, precise, and enterprising use of radium. To those who do not grudge the learning of an exacting technique and the risk of many disappointments there is here a promising field for courage and ingenuity.

It is to be hoped, however, that the number of cases of the severer type will diminish when the natural history of these growths becomes more generally known and it is learnt that the diagnosis is usually easy at an early stage if one knows what to look for.

The future development of the subject probably lies then, on the one hand, in the exploitation of radium, and on the other in that of early diagnosis. Should the latter be cultivated on an adequate scale, the operative excision of small pharyngeal epitheliomas will probably long remain a legitimate field for the surgical adept and a field in which he may look with confidence for cures with little risk to life and no persistent disability.

HOSPITAL ENLARGEMENTS.—Cardinal Bourne last week laid the foundation-stone of a new wing of the nurses' home at the Hospital of St. John and St. Elizabeth, Grove End-road, N.W.—The Bishop of Barking has dedicated three new maternity wards at the Walthamstow Nursing Home, each containing four beds.—In the same neighbourhood Alderman Mrs. McEntee recently opened a sunlight ward extension at the Brookfield Orthopædic Hospital, Hale End, which has been given by Mr. T. G. Armstrong.—Last week Mrs. A. C. Nicholson opened and the Bishop of Bristol dedicated extensions of Chippenham cottage hospital, which have cost £4330. The enlargements comprise new men's and women's wards, each of eight beds, an out-patient's department, an improved theatre, and new nurse's quarters.—Lady Rogers recently opened a small extension of Helston, Cornwall, war memorial cottage hospital.

THE SIZE OF THE HEALTHY HEART AND ITS MEASUREMENT.

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LONG before the advent of auscultation and percussion, enlargement of the heart was recognised as a manifestation of heart disease. Early writer spoke of aneurysm of the heart, later distinguishin between active and passive aneurysm, and Morgagni in 1761, first separated hypertrophy from dilatation The need for some standard of heart size whic should differentiate the healthy from the disease organ became apparent, and Laennec (1819) compare the size of the heart to that of the closed fist of th subject. Lobstein is said to have first suggested th weight of the heart as an index of its size, a metho also adopted by Bouillaud, and Bizot first estimate the dimensions of the heart in the cadaver. Both the weight and the size of the heart were studied by Peacock.[17]

With the introduction of auscultation and percussion, enlargement of the heart became a matter of concern to clinicians, though it was long overshadowed by the novel discovery of murmurs. Now that the significance of murmurs is seen in proper perspective, the estimation of the size of the heart is recognised to be of paramount importance, and it is not going too far to say that enlargement of the heart is the most unequivocal single physical sign of heart disease which is generally applicable.

The recognition of a gross degree of enlargement is usually easy, but the detection of slight enlargement is often a matter of considerable difficulty, whatever be the method employed. This difficulty is twofold: first, the size of the heart in health varies between such wide limits that a naturally small heart may enlarge considerably from disease before it will exceed the upper normal limit, and secondly, some degree of experimental error is unavoidable in measuring a deeply seated and constantly moving organ such as the heart.

In other countries, methods of measuring the heart by X rays have been devised and used and many standard tables have been published but, as far as we know, no standard of heart size has been constructed for healthy English subjects. In compiling such a normal standard, it is important that the measurements should be made, not only of healthy hearts, but in healthy subjects. For this reason, hospital patients are unsuitable material on which to base a standard of normality. At the Central Medical Board, R.A.F., we have had the opportunity of measuring the heart by X rays in large numbers of healthy subjects in whom the medical history was known, and who had been carefully and in many cases repeatedly examined.

CLINICAL METHODS OF ESTIMATING SIZE OF HEART.

Every case, before X ray examination, was examined clinically, and an estimate of the size of the heart was made, so that we have been able to assess the degree of accuracy of clinical methods in our own hands. Our experience in this respect has convinced us that the only clinical method of any practical value in estimating heart size is location of the apex-beat by palpation. This method is approximate, and is frequently inapplicable to obese or emphysematous subjects, but it suffices in the majority of young subjects and in adults of normal build. Certain precautions must be observed. The apex-beat is taken as the left-most point on the chest wall at which a definite lift is imparted to the finger-tip, and not the left-most point at which the cardiac pulsation can be appreciated. When tachycardia is present, or when the heart's action is tumultuous, as in Graves's disease, anæmia, or emotional excitement, the impulse is more widely diffused than normally and the apex-beat may be perceptible to the hand well beyond the left border of the heart as determined by X rays. It is important, therefore, in estimating the size of the heart clinically, to choose a time when the heart is beating quietly and at a normal rate, and to be particularly cautious in deciding that a heart is enlarged under conditions other than these. Dietlen [5] estimated that in about one-third of all cases the apex-beat coincided with the left border of the heart, and that in about two-thirds it failed to do so; but, if the precautions mentioned are observed the size of the heart need seldom be seriously over-estimated. This applies to hearts of approximately normal size, but the larger the heart the less reliable becomes the position of the clinical apex-beat as an index of size. In healthy adults the position of the apex-beat varies from 6·5 to 10·5 cm. (2½ to 4¼ in.) from the mid-line according to the size of the individual. Thus the apex may be over four inches out in a big man and yet the heart be perfectly healthy, whereas in a small man it may be 3½ inches out and yet the heart be diseased. In adult males the nipple is an excellent landmark, as it varies in position with body size, and it is rare to find the apex-beat of a healthy heart beyond the nipple.

We are convinced that percussion is a far less reliable method of estimating the size of the heart than is palpation of the apex-beat, and that, if palpation fails, percussion is unlikely to succeed. As early as 1840, Gendrin advocated location of the apex-beat by palpation as the best method of determining the left border of the heart, as did Constantin Paul [16] in his method of measuring the heart described in 1878, and more recently Sir T. Lewis [13] has criticised percussion of the heart and advocated palpation as a means of estimating its size.

RADIOLOGICAL METHODS.

There are three radiological methods of estimating heart size: namely, radioscopy, teleradiography, and orthodiagraphy. Simple screening enables the size of the heart to be compared with that of the chest, and an experienced observer rarely has difficulty in deciding whether the heart is enlarged or not, but actual measurement is impossible and no permanent record of heart size is obtained for future reference. Teleradiography involves taking a radiogram of the chest with the film at a distance of two metres from the tube. At this distance the rays are nearly parallel and the degree of distortion from divergence of rays is relatively slight, though it cannot be ignored. In the orthodiagraphic method a freely movable tube is used, fitted with a diaphragm by which the rays can be cut down to a narrow beam of one or two inches diameter where they strike the screen, only the central rays being used. The tube movement is always in a plane parallel with the screen, so the beam of rays is always perpendicular to it; by moving this beam round the heart borders and internal surface of the thorax, the outline can be drawn directly on to the screen by a grease pencil or can be marked directly on to paper by a special recording device, as used in the Grœdel orthodiagraph. The different projections of the heart obtained by these three methods are illustrated diagramatically in Fig. 1. The degree of distortion in a 2-metre teleradiogram, in subjects of average size and build, has been calculated by Bardeen [1] from anatomical measurements and he states that a reduction of 3 per cent. in linear measurements and of 6 per cent. in area must be made to obtain the actual size of the heart. Dietlen,[5] Hammer,[9] and others have found an over-estimation of 1–2·4 cm. in transverse diameter of the heart in the teleradiogram as compared with the orthodiagram, a figure considerably in excess of Bardeen's theoretical estimate.

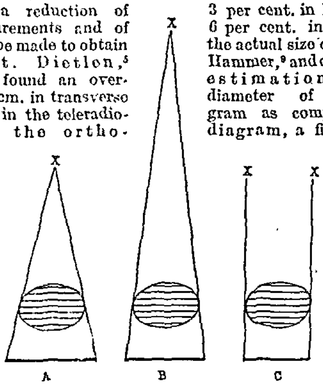


FIG. 1.

Diagram illustrating the relative size of the heart outline (A) at a focal distance of one metre; (B) in a teleradiogram at two metres; (C) in the orthodiagram. X represents the anticathode of the tube, and A, B, and C are the projections of the heart on the film or screen.

The degree of distortion depends a good deal on the technique employed and on the size of the chest; probably a reduction of 5–10 per cent. is usually required. Unless the degree of distortion has been calculated for the particular technique employed, teleradiogram measurements should not be compared with orthodiagram measurements but a different standard of normal size should be used for each method. The orthodiagram has been criticised on the grounds of being a subjective method and involving too large a personal factor. Hammer [9] tested his personal experimental error in each method by taking serial records of a number of cases, and he found that the degree of variation between different records of the same case was always greater in teleradiograms than in orthodiagrams. That is to say, in the hands of an expert, the experimental error involved in measuring the heart is greater in teleradiograms than in orthodiagrams. The error in teleradiography arises from the difficulty in accurately centring the patient, in centring the tube always in the same relation to the heart, and in obtaining the records always in the same phase of respiration. In practised hands the orthodiagram is, *in our opinion*, the quickest, the cheapest, and the most accurate method of measuring the heart.

The orthodiagram is a true-sized silhouette of the heart in a single plane, and its size may be expressed in square measure as area or in linear measure by drawing in certain diameters. The diameters usually employed are shown in Fig. 2. The total transverse diameter (TD) is obtained by adding together the two horizontal diameters (MR+ML) drawn from the mid-line to the most distant points on the right and left borders respectively. The longitudinal diameter (LD) is obtained by joining the upper point of the right auricle, at its junction with the vascular pedicle, to the apex of the heart.

FIG. 2.

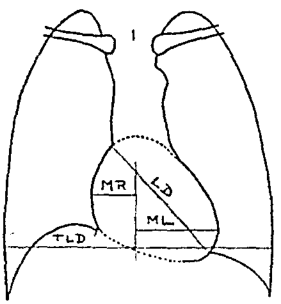


FIG. 3.

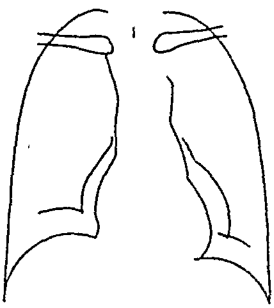


FIG. 2.—Normal orthodiagram showing the diameters used in measuring the heart. Transverse diameter = MR + ML. Longitudinal diameter = LD. Transverse lung diameter = TLD. Upper and lower limits of cardiac area indicated by dotted lines.
FIG. 3.—Orthodiagram showing heart outline in full inspiration (inner) and in full expiration (outer).

As the apex may be below diaphragm level, it cannot always be outlined, and it may be invisible in a teleradiogram unless there is gas in the stomach; thus the longitudinal diameter is less reliable than the transverse. The area is obtained by completing arbitrarily the upper and lower boundaries of the heart by curved lines and then measuring the contained area by means of a planimeter, or by squared paper.

The objection to area as an index of heart size is the personal factor involved in drawing in the upper and lower borders of the heart, and the time involved in measurement. We have measured the area by planimeter in all our cases, but we have found it a far less valuable measurement than the transverse diameter, though in the hands of a single observer the experimental error is possibly no greater than in a linear measurement. Eyster regards area of the orthodiagram as slightly better than transverse diameter as an index of heart size, but there must be more variation between different observers than in the case of the linear measurement.

The transverse diameter depends not only on the size but also on the shape and the position of the heart, and the following factors must therefore be taken into account.

1. *Heart Cycle.*—The heart is smaller in systole than in diastole, and the diastolic size should always be measured. In a quietly beating heart, the difference in transverse diameter between systole and diastole is almost negligible, being less than 5 mm., but it is greater in such conditions as aortic incompetence.

2. *Respiration.*—The difference in transverse diameter between full inspiration and full expiration may be as much as 4 cm. (see Fig. 3), but in normal quiet respiration this difference rarely exceeds 5 mm. In making orthodiagrams we always draw the heart in the expiratory phase of quiet breathing, but some take the "mid-respiratory position."

3. *Body Posture.*—Owing to variation in level of the diaphragm, the heart is narrower in the upright than in the horizontal position of the body, and is intermediate in width in the sitting posture. Otten[14] found an average decrease of 0·2 cm. in transverse diameter in changing from lying to sitting, and a similar decrease between sitting and standing. Thus, in comparing the vertical with the horizontal orthodiagram, an allowance of approximately ½ cm. should be made. The horizontal position was used in most of the earlier German orthodiagraphic measurements, but the vertical position is more practical, has now come into general use, and is the one we always employ.

4. *Shape of Chest and Body Build.*—In subjects with long, narrow chests the heart lies more vertically than in those with short, broad chests, so that a heart of given volume will have a smaller transverse diameter in a long, narrow chest than in a short, broad one. The lie of the heart may be estimated approximately by measuring the angle between the longitudinal diameter and the vertical, which varies between 35° and 55°. Apart from the shape of the thorax, the height of the diaphragm is influenced by abdominal distension and obesity. In heart failure the diaphragm ascends from enlargement of the liver and distension of the bowel, so that the heart may become wider, apart from any increase in volume. Examples of differently shaped healthy hearts are illustrated in Figs. 4 and 5. The orthodiagram in Fig. 4 is from a member of the Schneider Cup team, whose physical efficiency was above the average, yet the heart is of vertical type and the transverse diameter much below the mean for his weight. Fig. 5 shows a horizontal type of heart from a healthy man with a tendency to obesity. *It is generally recognised that athletes have* slightly larger hearts than average, or than those in sedentary occupations, and therefore occupation and habits must be considered in each case when deciding if a heart is enlarged.

FIG. 4.

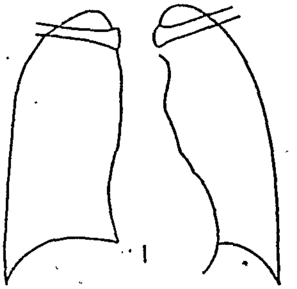


FIG 5.

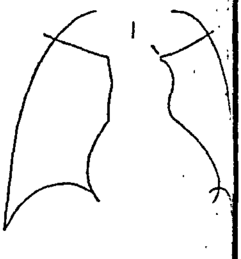


FIG. 4.—Orthodiagram of a vertical type of heart from a member of the Schneider Cup team. Weight 73 kg.; height 178 cm.; transverse diameter 9·7 cm.; cardio-thoracic ratio 38·9 per cent.
FIG. 5.—Orthodiagram of a horizontal type of heart with high diaphragm, from a healthy man of 27 with a tendency to obesity. Weight 78 kg.; height 178 cm.; transverse diameter 13·6 cm.; cardio-thoracic ratio 56·6 per cent.

A Study of Normal Hearts.

For the purpose of obtaining a normal standard 116 orthodiagrams were measured and correlated with the body measurements, such as weight, height, chest circumference, and body surface area. These records were from healthy adult males aged 18 to 40 years: cadets, candidates for commissions, serving officers, and civil pilots coming up for routine examination at the Central Medical Board. In every case the medical history was known and a careful physical examination was made, often including an electrocardiogram. No heart was accepted for measurement until the history and physical signs had been scrutinized, and any case in which the history, physical signs, blood pressure, or electrocardiogram were not perfectly compatible with health was rejected. Thus a history of rheumatic fever or of any recent infection, a slightly raised blood pressure, or an abnormal electrocardiogram, were grounds for rejecting the case. Apart from these rejections, the cases measured were as far as possible consecutive ones. The material consisted, therefore, of selected healthy adult males whose freedom from disease seemed unquestionable. The importance of using selected normal subjects as the basis of a standard of normal heart size has been stressed by Eyster and others.

TECHNIQUE USED IN ORTHODIAGRAPHY.

All orthodiagrams were made with the subject standing, and the heart was outlined in diastole and in the *expiratory phase of quiet respiration.* At least two outlines were made in each case, often by both of us, and no record was accepted unless the transverse diameter in consecutive outlines agreed within 5 mm., though such a degree of divergence was exceptional. In nervous subjects who breathe deeply or rapidly during the examination this degree of accuracy may be unobtainable, owing to rapid respiratory movement of the heart, and such cases were rejected. The total transverse diameter (TD), the longitudinal diameter (LD), the angle between LD and the vertical, the area of the heart and the maximum internal diameter of the thorax, or transverse lung diameter (TLD), were measured. The ratio of the heart transverse diameter to that of the chest—the so-called cardio-thoracic ratio—was calculated in percentage of chest diameter.

CORRELATION OF HEART SIZE WITH BODY SIZE.

Since the earliest attempts, already mentioned, to estimate the normal size of the heart, many anatomical studies have been made of the relation of the heart-weight to the body-weight, and of these the recent paper by Smith[18] may be cited. There is general agreement that the heart-weight varies directly with the body-weight, and Smith gives the ratio of heart-to body-weight as 0·43 per cent. in adult males and as 0·40 per cent. in females; he states that the heart-weight can be predicted from the body-weight with an error of from 8 to 10 per cent. Müller and others have concluded that there is an increase in the relative heart-weight with age, irrespective of the size of the body, but Smith denies this, and attributes Müller's findings to his failure to exclude hypertensive hearts among the older subjects. Height affects the heart-weight only as height affects body-weight.

Radiological measurements of the heart size in life correspond to these anatomical findings. Moritz, who was the first to make orthodiagraphic measurements of the heart, correlated heart size with height, and his method was followed by other German workers. Dietlen first showed that weight was the more important factor in determining heart size, and later investigations have amply confirmed this. Owing to differences in the technique employed the normal values for heart size in relation to body-weight given in different published tables show considerable discrepancy, and this has led to confusion.

Orthodiagraphic measurements are not comparable to those made from teleradiograms, and different values are required for lying, sitting, and standing. Most of the earlier German tables relate to orthodiagrams taken with the subject lying, but the sitting or standing position is universally used to-day, and this applies also to teleradiograms. The difference in transverse diameter in the different body postures has already been mentioned. Most tables give an average, a maximum, and a minimum value of heart TD at different body-weights. Sometimes tables for height are included, and the mean value between that given for weight and that given for height is taken as normal. Others take into account the lie of the heart, predicting a normal transverse diameter for vertical, oblique, and horizontal hearts. In order to combine the factors of weight and height, Smith and Bloedorn[19] suggested body surface area as a suitable index of body size to correlate with heart size, and this has been adopted by Kissane.[12] The recent work of Bardeen[1 2] and of Eyster and various co-workers[6 7 8 10 11] marks a considerable advance on previous methods. Both have based their tables of heart size on formulæ, calculated by statistical methods. Eyster and others made heart and body measurements in groups of carefully selected normal cases and subjected their measurements to elaborate mathematical analysis. Taking transverse diameter or area of the orthodiagram as an index of heart size, and age, height, and weight as variables, they calculated the coefficients of correlation between the various heart and body dimensions, and from these developed formulæ. Thus, for transverse diameter, Eyster's formula is as follows:—

Predicted TD (mm.) = +0·1094 × age − 0·1941 × height (cm.) + 0·8179 × weight (kg.) + 95·8625.

From this formula, tables have been constructed giving a factor for height and a factor for weight which, added together, give the predicted transverse diameter. Bardeen has developed formulæ for heart silhouette area in relation to body-weight, and has also correlated area with transverse diameter and with heart volume.

RELATION OF TRANSVERSE DIAMETER TO BODY-WEIGHT.

In Table I. our cases are grouped according to body-weight, in divisions of 5 kg. The average age in each weight group was approximately the same, so that the age factor may be ignored. The average transverse diameter increases steadily with the body-weight, but the upper and lower limits in each group overlap considerably. For instance, the maximum TD in the 55–59 kg. group exceeds the minimum TD in the 75–79 kg. group. It is clear, therefore, that a standard of heart size based simply on body-weight will scarcely be of much practical value, owing to the wide range of variation in transverse

TABLE I.

Weight (kilograms)	50–54	55–59	60–64	65–69	70–74	75–79	80–89
Cases	4	20	30	24	19	13	5
TD heart (cm.)—							
Average	10·8	10·9	11·2	11·6	12·1	12·2	13·4
Minimum	9 9	9·9	9·7	10·4	9·7	10·7	12·0
Maximum ..	12 0	11·7	13·0	13·1	13·8	14·0	14·9

TABLE II.

Weight.	Height.	TD.	Weight.	Height.	TD.
kg.	cm.	cm.	kg.	cm.	cm.
55	—	10·7	75	—	12·3
58	172	10·9	78	180	12·5
60	—	11·1	80	—	12·7
63	173	11·3	83	—	12·9
65	—	11·5	85	183	13·1
68	176	11·7	88	—	13·3
70	—	11·9	90	—	13·5
73	177	12·1	—	—	—

TD = transverse diameter.

diameter at each weight. By means of a graph, in which the mean transverse diameter was plotted against body-weight and the curve adjusted to a straight line, Table II. was compiled, giving the average TD for different body-weights. In Table III. the cases are grouped according to size

TABLE III.

TD.	Cases.	Age.	Ht.	Wt.	Chest.	Angle.	Cardiac thoracic ratio.	Body surface area.
cm.			cm.	kg.	cm.	deg.	%	
9·7–10·4	16	24	178	62	84	40	42	1·77
10·5–10·9	19	25	175	62	84	42	44	1·70
11·0–11·4	24	25	173	63	85	45	46	1·74
11·5–11·9	18	24	175	65	86	45	48	1·79
12·0–12·4	16	24	175	70	89	47	48	1·84
12·5–12·9	11	25	175	70	89	50	50	1·84
13·0–14·0	10	30	175	74	90	51	52	1·89
Average of 114 cases	—	25	175	66	86	45	47	1·78

of transverse diameter. This Table shows that body-weight, chest circumference, and cardio-thoracic ratio increase steadily with transverse diameter, but that height does not. The increase in cardio-thoracic ratio is explained by the increase in the angle of the heart's long axis to the vertical; the larger hearts were the more horizontally inclined, so that their transverse diameter increased relative to that of the chest. Height remains fairly constant, but the group with the smallest hearts were actually the tallest. Analysis of the individual weight groups shows clearly the effect of height on transverse diameter. The 60–64 kg. weight group, tabulated below, may be taken as an example.

Weight 60-64 kg.: 30 cases. Average height: 173 cm.
Average TD: 11·2 cm.

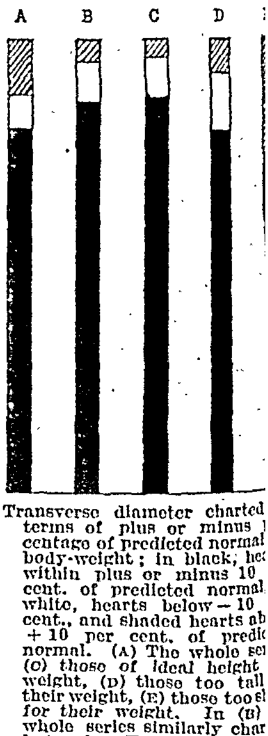
Height.	Average TD.	Cases.
Above 175 cm.	10·4 cm.	13
171–175 cm.	11·1 cm.	10
Below 171 cm.	11·7 cm.	7

The cases are divided up according to height into those within a range of ±2 cm. of the average height for the weight group, those above and those below these limits. Those taller than average have a smaller transverse diameter, and those shorter than average a larger transverse diameter than the mean for the group, while those within 2 cm. of average height have a transverse diameter approximating to the mean. In other words, at a given weight, the taller the subject the smaller the transverse diameter, and the shorter the subject the larger the transverse diameter. Analysis of the other weight groups showed the same inverse variation of transverse diameter with height. This important fact has not been properly appreciated, though Eyster's tables also show an inverse relation between height and transverse diameter at any given weight. The explanation lies in the fact that the proportion between height and weight is an index of build, and therefore of the shape of the chest and lie of the heart. A man too tall for his height tends to have a long, narrow chest with a vertically lying heart, and a man too short for his weight tends to have a short, broad chest with a horizontally lying heart. A heart of given volume will have a larger transverse diameter when lying horizontally in a broad chest than when lying vertically in a narrow chest. Thus an inverse relation between transverse diameter and height does not imply an inverse relation between heart-volume and height.

CORRELATION OF TRANSVERSE DIAMETER WITH BOTH WEIGHT AND HEIGHT.

Kissane[12] has pointed out the importance o basing the normal standard of heart size o measurements of subjects whose height is correctl proportioned to their weight. He has shown that th range of variation from the mean heart size for body weight is greater in those whose height and weigh are disproportionate than in those of ideal heigh for weight.

FIG. 6.



Transverse diameter charted terms of plus or minus centage of predicted normal body-weight; in black, he within plus or minus 10 cent. of predicted normal white, hearts below − 10 cent., and shaded hearts ab + 10 per cent. of predic normal. (A) The whole se (C) those of ideal height weight, (D) those too tall their weight, (E) those too s for their weight. In (B) whole series similarly char but using Eyster's predic from weight and height as normal in every case

We have analysed our whole series with regard t the effect of the height-weight ratio on transvers diameter in the following way. The average height for each weight group was taken arbitrarily as ideal height for those within that group. Ideal height for weight varies with age and sex, but in a series of young adult males within fairly narrow limits of age the average height of each weight group is quite a good standard of ideal height. The cases were divided into three categories, as follows: (1) those whose height was within a range of ± 2 cm. of ideal height for their weight; (2) those more than 2 cm. above ideal height; (3) those more than 2 cm. below ideal height. In each case the actual transverse diameter was compared to that predicted as normal for body-weight by Table II., and the result was expressed as a ± percentage of the predicted normal transverse diameter, following Eyster's method. If a variation ± 10 per cent. of the predicted normal transve diameter is taken as being a reasonable normal ran then such limits include 81 per cent. of hearts in whole series, 87 per cent. in those of ideal heig 80 per cent. in those too tall, and 74 per cent. in th too short for their weight. In those of ideal heig the average transverse diameter was +0·3 per ce of predicted normal for weight; in those too t it was −2·8 per cent.; and in those too short it w +4·4 per cent. The incidence of hearts within range of ± 10 per cent. of predicted normal, and hearts larger and smaller than this, is sho graphically in Fig. 6. The distribution of t large hearts—i.e., those over +10 per cent. predicted normal—is striking. In the whole seri 12 per cent., in those of ideal height only 4 per cen in those too tall 6 per cent., and in those too sho 26 per cent., had large hearts. Thus the inciden of large hearts is six times as great in those too sho for their weight as in those of ideal height. The di tribution of small hearts—i.e., below −10 per cent. predicted normal—was just the reverse of that of th large hearts: in the whole series 7 per cent., in those of ideal height 8 per cent., in those too tall 13 per cent., and in those too short none had small hearts.

For the purpose of comparison, the transverse diameter predicted by Eyster's tables, based on height, weight, and age, was found for every case, and the observed transverse diameter was expressed as a ± percentage of Eyster's predicted normal. Of our whole series, 86 per cent. had hearts within a range of ± 10 per cent. of Eyster's standard, 4·3 per cent. exceeded the +10 per cent. limit, and 9·5 per cent. fell below the −10 per cent. (Fig. 6 (B)). Thus Eyster's prediction of transverse diameter based on height, weight, and age gave better results in our series of normals than did a prediction based on the mean transverse diameter for body-weight, and gave results almost identical when applied to the whole series of cases, with the results of a weight prediction in those of ideal height for weight.

From this we may conclude that the normal transverse diameter may be predicted from body weight alone in those of ideal height for weight, but that in others both height and weight must be taken into account in order to obtain an equally successful prediction. This may be done by using tables based on a formula, such as those constructed by Eyster and his co-workers, or the normal transverse diameter predicted from body weight may be corrected for height when this diverges from the ideal height for body-weight. In our series the average correction required for height was approximately 1 per cent. of predicted transverse diameter for each 2 cm. divergence from ideal height. Thus, to predict the normal transverse diameter for a man 10 cm. below ideal height for his weight, 5 per cent. is added to the transverse diameter normal for his weight. In a man 10 cm. too tall for his weight, 5 per cent. is subtracted from the normal transverse diameter for his weight. Thus a range of ± 10 per cent. of predicted normal transverse diameter for weight in a man of ideal height would correspond to a range of −5 per cent. to +15 per cent. in a man 10 cm. too short, and to a range of −15 per cent. to +5 per cent. in a man 10 cm. too tall. We have tested Eyster's tables on our series of healthy subjects, and they give as successful a prediction of transverse diameter as we believe it is possible to obtain.

There are other possible methods of taking into account the lie of the heart and shape of the chest besides the height-weight proportion. Thus Dietlen gives a different standard of transverse diameter at any weight for the vertical, the average, and the horizontal type of heart. If the angle of the heart's long axis could be accurately measured, a correction for angle could be applied instead of a correction for height. When the apex lies below the diaphragm, however, the angle cannot be accurately measured. Another method would be to find the ideal relation between the transverse diameter of the chest and the height, and apply a correction where necessary. These methods have no advantage over a prediction from height and weight.

The Value of Heart Measurements.

The practical value of heart measurements may be considered under the following three heads:—

1. *How accurately can heart size be measured?* The heart being a three-dimensional organ, its size may be expressed as volume or as weight. Bardeen has checked the relation between heart volume, transverse diameter and area by anatomical measurements in the cadaver, and he found that their interrelation was sufficiently constant to justify the use of transverse diameter and area as an index of heart volume. Palmieri[15] and Berg and Schatzki[2] have devised ingenious and fairly accurate methods of constructing three-dimensional models of the heart by radiological means, and the volume can be estimated from these models. Their methods are too complicated, however, to permit of routine clinical use. For practical purposes radiological measurements of the heart are limited to transverse diameter and area of the frontal silhouette. Area involves, besides the experimental error in obtaining the heart outline, a further error in measuring it, and for this reason we prefer transverse diameter as the index of heart size. The volume of the heart varies directly with the cube of the transverse diameter, so that quite small changes in transverse diameter correspond to considerable changes in volume. According to the size of the heart, an increase of 1 cm. in transverse diameter may correspond to an increase of 50–200 c.cm. in volume. For a heart of average size, an experimental error of 5 mm. in measuring transverse diameter corresponds to an error of 15 per cent. in volume. But the relation of transverse diameter to volume is not a constant one, for it varies with the lie of the heart in the chest. This variation is roughly neutralized if transverse diameter is correlated with both height and weight, but some degree of error must be involved. Probably the maximum error involved in estimating the size of the heart by measuring its transverse diameter is equivalent to 20 per cent. in volume, though the average error should be less than 10 per cent.

2. *How closely can heart size be correlated with body size?* In subjects of ideal height for weight, 87 per cent. had a transverse diameter within a range of ± 10 per cent. of that predicted from body-weight, and 4 per cent. exceeded the upper limit of this range. In those not of ideal height, an almost equally successful prediction of transverse diameter was obtained from both height and weight by means of Eyster's tables or by correcting for height a prediction based on body-weight alone. This applies to a group of healthy adult males within narrow age limits. Had the age limits been wider, and had both sexes been included, the prediction would undoubtedly have been less successful.

3. *What is the value of measurements in separating healthy from diseased hearts?* Eyster[6] has tested the capacity of his tables to separate healthy from diseased hearts by applying his prediction to a series of healthy subjects, and to a series of patients with definite organic heart disease but free from heart failure. Using transverse diameter as the index of heart size, 84 per cent. of healthy hearts fell within a range of ± 10 per cent. of predicted normal size, and 8 per cent. exceeded the upper limit of this range. Of the diseased hearts 22 per cent. fell within a ± 10 per cent. range of normal, and 78 per cent. exceeded the upper limit. It is obvious that heart measurements cannot be applied in a rule-of-thumb manner to separate healthy from diseased hearts, for a diseased heart need not be enlarged—for example in the case of mitral stenosis or of coronary atheroma. Changes in the shape of the heart outline and of its vascular pedicle often precede enlargement of the heart transversely; in mitral stenosis enlargement of the left auricle and pulmonary artery, and in coronary atheroma widening of the aorta, may be detected on screen examination at a stage when measurements correctly demonstrate the absence of transverse enlargement of the heart. We believe that screen examination in the postero-anterior and oblique positions is a more reliable means of recognising

heart disease than is measurement of the orthodiagram. Indeed, we would maintain that simple inspection of the orthodiagram will enable any experienced observer to decide the question of pathological enlargement with a degree of success at least equal to that attained by measurements. This is no argument against measurement of the heart, for the purpose of measurements is to decide the size of the heart in terms of the average normal size for a given individual. The size of the heart, expressed as a ± percentage of the average normal size for weight and height, is useful information, but it must only be considered in relation to the clinical picture as a whole, and not apart from it. For example, a heart of +10 per cent. of predicted normal size in an apparently healthy athlete would not be of much significance, but in a sedentary worker with a history of rheumatic fever, or with a slightly raised blood pressure, it would suggest pathological enlargement.

Summary and Conclusion.

1. Location of the apex-beat by palpation is the most reliable clinical method of measuring the heart, and orthodiagraphy is the simplest and most accurate radiological method.

2. The total transverse diameter is the most reliable index of heart size for practical purposes. Transverse diameter varies directly with body-weight, but not with height. At any given weight, transverse diameter varies inversely with height. Short, broad subjects have wider hearts in portion to body-weight than tall, slender subjects.

3. The normal transverse diameter may be predicted with reasonable accuracy from body-weight in those whose height is ideal for their weight. In others both height and weight must be taken into account in predicting heart size.

4. The observed transverse diameter expressed as a ± percentage of that predicted from weight and height is the best way of indicating heart size. Taking account of both weight and height, about 85 per cent. of normal hearts fall within a range of ± 10 per cent. of the predicted normal, and less than 10 per cent. of hearts exceed the upper limit of ± 10 per cent.

Measurements cannot be applied as a rule-of-thumb method in separating healthy from diseased hearts, but must be considered in relation to the clinical data. In border-line cases changes in the shape of the heart silhouette, viewed from different angles, are likely to be of more value than measurements.

We wish to express our thanks to the Director of Medical Services, Royal Air Force, for permission to carry out this research and to publish the results.

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CEREBRAL TUMOUR AS A CAUSE OF GENERALISED EPILEPTIC ATTACKS OF LONG STANDING.

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IN a recent discussion on the mental symptoms associated with cerebral tumour[1] the view was advanced that because the mental symptoms in one case quoted had preceded the signs of raised intracranial pressure by many years, therefore these symptoms could probably not be rightly attributed to the tumour which was later discovered to be present. The present group of cases show that this view would not be justified in respect of epileptic fits upon grounds of duration of the symptoms alone.

It is a familiar fact that a cerebral tumour may give rise to epileptic fits. It is generally held that such fits are among the later-appearing phenomena of this disease and are due to an increase of cortical irritability consequent upon a rise of intracranial pressure. That such fits may be not generalised but restricted to certain parts of the body and may either remain restricted throughout a series of individual attacks or may later become generalised is also well known. Such focal or Jacksonian attacks may commence with a local aura of a sensory or a motor type, a peculiar sensation of twitching of some one part of the body. This may spread progressively so that other parts are involved in a definite sequence. This spread or march of the attack may stop short of the mid-line or may pass across to the other side, so that the fit becomes generalised and consciousness is commonly lost. Upon recovery there is frequently a relatively persistent impairment of function, maximal in the neighbourhood of the point of origin of the attack.

The common association between a given focal origin of the symptoms and the proximity of the tumour to a certain region of the cerebral cortex determines the importance of such attacks as aids to localisation. Owing to this importance, the above relation has probably been too much stressed, so that it is sometimes assumed that focal Jacksonian attacks indicate the presence of a focal cerebral lesion and that, when such a lesion gives rise to epileptic attacks, these tend to be of a focal character. Neither of these assumptions is justified. Focal attacks may occur repeatedly over an indefinite period without the detection of any other signs of a local lesion during life and without the discovery of any such lesion at post-mortem examination.

It is not as commonly recognised that, in a patient who has a slowly growing cerebral tumour, generalised convulsions, with no local aura and no focal incidence of the sensory or motor phenomena and followed by no local impairment of function, may be present for many years before any other signs of the disease are detected. Such patients are treated during this period of several years as cases of idiopathic epilepsy. The following cases illustrate this point:—

Case Histories.

CASE 1, a window cleaner, aged 34, first came under observation in the out-patient department of the Hospital for Epilepsy and Paralysis, Maida Vale, in March, 1927. He had then had epileptic attacks with loss of consciousness, cyanosis, and generalised convulsions since 1909. In 1915 he had been discharged from the army for these attacks, and since 1921 they had become more frequent, occurring in bouts of several fits at intervals of one to two months. They were frequently preceded by some difficulty in speaking and more often still followed by aphasia. Examination in March, 1927, revealed no abnormal signs of nervous disease, beyond slight fullness of the retinal veins, better marked in the left eye.

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[1] Proc. Roy. Soc. Med., 1931, p. 1005

He was admitted, and remained an in-patient for the following six weeks. During this period he had several generalised epileptic attacks, and one attack which consisted in a period of unresponsiveness during which he muttered incoherently in an undertone. No preceding or following dysphasia or aphasia was noticed. His blood Wassermann reaction was negative and the cerebro-spinal fluid was free from cells and had a normal protein content. Radiographic examination of his skull revealed no abnormality. The ophthalmic surgeon reported that his visual fields were full and the fundus oculi normal. When shown at a clinical meeting of the physicians of the hospital he was held to be probably a case of idiopathic epilepsy.

After discharge he remained under treatment as an out-patient, receiving luminal and bromides. The attacks increased gradually in frequency and, when he was examined in the middle of September, it was noticed that the grasp of his right hand was weak, that the arm tendon reflexes were increased on the right side, and that the abdominal responses were diminished on the left, but there was no spasticity or sensory loss and the plantar responses were normal. The fundus oculi were again reported as normal, and were still normal in October. In December he began to have severe headaches and still more frequent fits. In January he was admitted to the wards of the London Hospital under Mr. Hugh Cairns, who has kindly supplied the following particulars of his treatment there. At operation the left cerebral hemisphere was explored but no tumour was found. *Post-mortem* examination revealed a large glioma in the left occipital and posterior parietal lobes, for the most part subcortical.

CASE 2, a clerk, aged 39, had had fits for ten years. In 1920, ten years before examination, he began to have epileptic attacks with no warning or aura, with loss of consciousness and generalised convulsions. These occurred at first every six months, but they became more frequent during the last five years, averaging one every six weeks. During this latter period also there were many petit mal attacks, averaging two to three per day. For the last two years he had infrequent frontal headaches without nausea or vomiting. The first added symptoms occurred early in September, 1930, when he complained of occasional double vision. On Sept. 29th he was found unconscious in a generalised epileptic fit and taken to the Mayday Road Hospital, Croydon. While an in-patient of that hospital he had several petit mal attacks and one attack of generalised convulsions and loss of consciousness without any aura or focal signs. He was found to have bilateral papillœdema, and an X ray photograph of his skull showed enlargement of the sella turcica and destruction of the clinoid process.

When examined on admission to the Hospital for Epilepsy and Paralysis, Maida Vale, on Dec. 4th, he was a healthy looking man with no defect of consciousness, intellect, or emotional control. He had a considerable degree of motor aphasia, chiefly of the nominal type, but no defect in understanding spoken words, although he had complete alexia. His visual acuity was 6/9 right and left. There was three dioptres of swelling of the optic discs with congestion of the retinal veins. He had occasional diplopia, associated with a divergent strabismus of the right eye. There was also complete right hemianopia with a few degrees of sparing of macular vision. He had some weakness of the right side of his face. His left arm was normal. On the right he showed impairment of finger movements and falling-away of the extended arm and hand, slight spasticity and increase of the tendon reflexes. The legs and some impairment of independent toe movements on the right, with slight spasticity and bilateral increases of the tendon reflexes. The plantar responses were flexor and the abdominal reflexes all brisk and equal. Light touches were everywhere appreciated and correctly localised. There was no impairment of recognition of solid form with the right hand and no diminution of sensibility to pin-prick or hot and cold stimuli. Two-point discrimination was correct at one centimetre on the left palm, but incorrect at distances of separation less than three centimetres on the right palm.

On Dec. 8th Mr. A. S. Blundell Bankart performed parieto-occipital decompression on the left side. The dura was under great tension and the cortical vessels over the flattened left occipital convolutions were much dilated. The left lateral ventricle was punctured and 2 c.cm. of cerebrospinal fluid flowed freely from the needle; after this no more fluid could be obtained with the needle in any position. Since this operation the patient has made a gradual recovery from the complete right hemiplegia and hemianæsthesia which immediately followed. At no time have his plantar responses been extensor in type, but the abdominal reflexes have been absent in the lower quadrant and diminished in the upper quadrant on the right side.

CASE 3, a painter, aged 20, was admitted on Nov. 10th, 1930. Seven years before he had fallen from a ladder (25 feet) and been unconscious for 45 minutes. He had had no immediate ill-effects from this accident. Five years before he had had his first generalised epileptic attack. Since that time fits had recurred at intervals of six months until the last nine months, during which period they had been recurring monthly. Each attack was preceded by a *momentary feeling of mental vacancy or unreality*. Consciousness was lost and completely generalised convulsions followed. He recovered after about five minutes and the only sequel of the attack was a frontal headache.

Examination on admission to the Hospital for Epilepsy and Paralysis, Maida Vale, on Nov. 10th, revealed the following particulars.

He was a well-nourished, healthy looking man with normal memory, intelligence, and emotional control. His visual acuity was 6/12 on the right and 6/18 on the left. There was bilateral papillœdema of 5 D, but no diplopia. The pupils were normal. There was bilateral external rectus weakness, better marked on the left side. He showed no sensory impairment over the face, but had deviation of the lower jaw to the left on opening against resistance, and slight weakness of the left side of his face. Weakness and impairment of fine movements on the left side were shown more in the movements of the legs and toes than in those of the arm and fingers. There was slight spasticity of the left limbs, more in the leg. The tendon reflexes were brisk and equal in the arms, but bilaterally exaggerated in the legs. The plantar response was extensor on the left. Abdominal responses were present but tired more easily on the left. The blood Wassermann reaction was negative.

On Nov. 17th his skull was decompressed over the right frontal region. This revealed great tension of the dura, with flattening and softening of the cerebral convolutions of the right frontal lobe. Following the operation, the left facial weakness became more marked and there was a transitory complete flaccid paralysis of the left arm lasting for a week only. He was discharged from the hospital on Dec. 21st with good power in all four limbs but a residual slight impairment of finger and toe movements. His gait was normal. The papillœdema had completely subsided.

CASE 4, a stable hand, aged 47, first appeared in the out-patient department in December, 1929, complaining of generalised epileptic convulsions of three years' duration. These had always occurred in the evening and were preceded by no local warning or aura. Consciousness was lost and there was tonic and clonic spasm, generalised throughout the body. On recovering consciousness he felt normal except for drowsiness and had no residual motor or sensory defects. During the preceding four months he had had occasional frontal headaches which were very severe but not associated with nausea or vomiting.

Examination on admission to the Hospital for Epilepsy and Paralysis, Maida Vale, on July 9th, 1930, revealed the following condition. He was a man of good physique. There was considerable mental retardation and emotional facility, with much impairment of memory for both recent and past events and considerable disorientation in time. His visual acuity was 6/9 on the right and 6/6 on the left. There was no diplopia. The visual fields were normal. There was early papillœdema, with more swelling and slight hæmorrhages on the right side only. The external ocular movements were full, with no nystagmus. There was upper motor neurone weakness of the left face and slight spastic weakness of the left arm and leg, with incoördination and static tremor of the left arm. The tendon reflexes were exaggerated on the left side in both arm and leg. There was persistent ankle- and knee-clonus on the left side, and the plantar responses were both flexor. The abdominal responses were diminished on the left. There was no trace of sensory defect. He had apathetic incontinence of urine. His blood pressure was 132/80 mm. Hg.

During his stay in the hospital his mental condition deteriorated, and the facial weakness and impairment of movements in the left arm became more marked. He had several severe right frontal headaches and the left plantar responses became at times extensor in type. He was operated upon on Nov. 9th and a cyst of the right frontal lobe was discovered.

STATUS EPILEPTICUS ASSOCIATED WITH GLIOMA IN THE LEFT HEMISPHERE.

CASE 5, an unmarried female typist, aged 32, was admitted to University College Hospital on July 11th, 1928, under Dr. Batty Shaw, in status epilepticus. While at work as a clerk in the railway station office she suddenly became unconscious without any warning at 1.45 P.M. She was convulsed repeatedly at intervals without regaining consciousness and was seen in the casualty department at University College Hospital in this condition at 3.45 P.M. During the period of status epilepticus each attack lasted about three minutes with five or ten minutes' interval, without return of consciousness. Each attack began with a general stiffening of the musculature followed by generalised clonic convulsions. The convulsions continued for three hours, until 4.55 P.M. Her previous health had been excellent and she had had no warning of the onset of any serious complaint.

On examination next day she was semi-comatose, incontinent of urine and fæces, but inclined to be restless. There was no head retraction. Her temperature was 99·8°, her respirations 28 per minute, her pulse-rate 96, and her blood pressure 90 mm. Hg. There was no abnormality of discs, retinæ, or vessels. There was no impairment of function of any of the cranial nerves. No voluntary movements were made on request. She showed no asymmetry of tone in the limbs and no spasticity. The arm tendon reflexes were brisk and equal; the knee-jerks and ankle-jerks increased and equal, without clonus; the abdominal responses all absent, and the plantar responses flexor. There was incontinence of urine and fæces. She resented pin-pricks wherever applied. The pulmonary, cardiovascular, alimentary, and urinary systems showed no abnormality.

On July 13th the patient woke up at 4 A.M. with a shout and was found to be unconscious and in general convulsions. She had ten generalised epileptic attacks between this time and 10 A.M. At 10 A.M. she was still comatose and had been incontinent during the attacks. The tongue had not been bitten. The fits recurred at 8.50 P.M. and lasted until 9.20 P.M. On July 14th she had one fit, similar to the previous ones, at 1.15 A.M. On July 15th she was still incontinent of urine and fæces. In the afternoon at 3.45 P.M. she had another generalised convulsion with loss of consciousness, lasting only about two minutes. During this attack she was incontinent of urine. By July 17th she was sufficiently alert to answer questions, and by July 21st she was no longer incontinent. On July 24th she complained of a feeling of fullness in the head. The pupils reacted well to light, but poorly on accommodation. The tendon reflexes were all very brisk but equal. The abdominal responses were all present and equal. The plantar responses were plantar-flexor. On July 31st the patient was discharged from hospital. She still showed a little mental retardation, which was attributed to her deafness.

Lumbar puncture on July 12th and 19th showed no increase of pressure; 14 c.cm. of clear fluid were withdrawn. This contained 14 white cells per c.mm., mostly lymphocytes, and gave no growth on culture. The Wassermann reaction was negative. A catheter specimen of urine showed no abnormalities. Her blood-urea was 30 mg. per 100 c.cm. Her blood-sugar curve with the glucose tolerance test was normal and the urine remained free from sugar after 40 g. of glucose by the mouth. X ray of her chest showed no evidence of pulmonary disease. The ophthalmologist reported on July 12th that the fundi and media were normal. The aural surgeon reported that the tympanic membranes were intact and showed no signs of past or recent suppuration.

After discharge from the hospital she gradually recovered her general strength and returned to work in October, 1928. She remained at work feeling perfectly well until Feb. 23rd, 1929, when she was said to collapse. For about a week she remained semi-conscious, not speaking but taking fluids by the mouth. She was occasionally incontinent and did not appear to recognise her relatives or to understand what was said to her. Subsequently she had several attacks of unconsciousness, lasting from a few minutes up to two days, after each of which she made a complete recovery. She also had attacks of stiffness and twitching in the right hand, which led her to make grasping movements with the hand in order to relieve the stiffness. During April the attacks of unconsciousness increased in frequency until April 20th, when she became semi-comatose. From March 4th to 25th she was an in-patient in the National Hospital, Queen-square, where she had several attacks of generalised convulsions but no organic signs of nervous disease; the fundi oculi were reported to be normal and lumbar puncture gave a clear normal fluid not under increased pressure. She was thought to be a case of petit mal followed by hysterical manifestations. She was readmitted in a state of coma to University College Hospital on April 28th under Mr. Julian Taylor. She lay on her back with her eyes tightly closed, and the only movement seen was an occasional screwing-up of the eyes and wrinkling of the forehead, suggesting that she was suffering from headache. She could be rouse by shaking but made no attempt to speak. The pupils were equal, central, and circular, and both rather dilated; the reaction to light was brisk. There was advanced papillœdema with three dioptres of swelling on the right and four on the left. The cranial nerves showed no abnormality. All four limbs were slightly spastic, with no detectable difference in tone on the two sides. The tendon reflexes were all brisk and equal. The abdominal responses were all diminished but equal. The plantar responses were extensor on the left and equivocal on the right.

Half an hour after admission the patient became cyanosed and cold and ceased to breath. Artificial respiration was commenced and had to be continued, as normal breathing was never resumed. Intranasal oxygen was administered, and 80 c.cm. of 35 per cent. sterile saline was given intravenously without any effect. The pulse-rate remained at 80 but the pulse was of poor volume. She was taken to the operating theatre and a left subtemporal decompression opening was made. The dura bulged with great increase of intracranial pressure. An effort was made to puncture the lateral ventricle, but it failed. No tumour was located.

Post-mortem report.—A large glioma into which hæmorrhage had occurred was found to occupy practically the whole of the left cerebral hemisphere in front of the Rolandic fissure.

Conclusions.

These cases show that it is possible for a cerebral tumour to give rise to generalised convulsions and to status epilepticus for many years (in Case 1 for 18 years) before any other signs indicating a local cerebral lesion are detected. In general it may be stated that such tumours are slow-growing and do not originate in, but beneath, the cerebral convolutions. The fits cannot be rightly regarded as resulting from a rise in intracranial pressure, since they may be present for many years before other signs of such a rise are present, and also because they do not increase either in frequency or in severity when a rise in intracranial pressure later supervenes.

The inference drawn from these considerations is that when convulsions commence and occur repeatedly in persons of middle age—even though the convulsions are generalised in character and leave behind them no local impairment of function—they should be regarded as possibly resulting from an intracranial tumour and the patient should be kept unde repeated observation, which may only after severa years discover definite signs indicating the nature o the lesion.

THE OCCURRENCE OF SCARLATINAL TYPES OF STREPTOCOCC IN NON-SCARLATINAL INFECTIONS.

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MOST of the serological work on the scarlatin streptococci in this country has been done by James Smith,[2] and Griffith.[3] [4] Griffith recognised fou main serological types of scarlatinal streptococc which he designated I., II., III., and IV., and thos strains not falling into these types were classed a heterogeneous. During the past four years I hav been investigating, in conjunction with Dr. W Gunn,[5] the incidence of the various types of scarlatin streptococci in several series of consecutive cases o scarlet fever, in order to try and find what correlation if any, existed between the type of infecting organism and the clinical severity of the disease, complications secondary infections, and relapses. Nasal and throat swabs from 400 patients suffering from scarlet feve have been cultured, and the hæmolytic streptococc isolated have been investigated serologically by agglutination tests against specific sera prepared for the four types of scarlatinal streptococci by intravenous inoculation of rabbits with dead and living ispensions of the respective strains. The results of is investigation, as regards the distribution of the ypes, are shown in Table I., which includes two series f 100 cases investigated by Griffith and Gunn [6] [7] 1926 and 1927. It will be seen that 63 per cent. f hæmolytic streptococci isolated from scarlatinal atients can be placed serologically in one or other f the four main types, while 31 per cent. fall into e heterogeneous group.

ABLE I.—*Distribution of Scarlatinal Types of Streptococci from 600 Cases of Scarlet Fever.*

Year.	Cases.	Percentage of types.					
		I.	II.	III.	IV.	Het.	Neg.
1926 ..	*100	2	34	17	23	17	7
1927 ..	*100	8	14	26	12	31	9
1928 ..	200	9	25	17	5	36	8
1929 ..	100	18	20	22	3	36	1
1930 ..	100	17	19	19	7	35	3
1926–30	600	10·8	22·4	20·2	10	31	5·6

Types I., II., III., IV. .. .. 63·4 per cent.
Het. = heterogeneous types .. .. 31·0 "
Neg. = negative .. .. 5·6 "
* Cases investigated by Griffith and Gunn.

A SERIES OF NON-SCARLATINAL INFECTIONS.

Arising from this investigation it was thought to be f interest to test in a similar manner strains of æmolytic streptococci isolated from infections other han scarlet fever, in order to find what proportion f them could be placed in the four main types. or the purpose all hæmolytic streptococci isolated om routine specimens, other than those from frank carlet fever, were examined. In all 215 strains have een tested, and Table II. shows the source of the rganisms and the number obtained from each source.

TABLE II.—*Showing Sources of 215 Strains of Hæmolytic Streptococci.*

Sources.	Strains.	Sources.	Strains.
ose	31	Sputum	4
hroat	75	Wounds	2
steomyelitis ..	5	T.B. sinuses ..	12
bscesses	17	Fæces	3
eural fluid ..	19	Spleen (post mortem)	2
terine cervix ..	7	Lung puncture ..	1
r and mastoid ..	11	Urine	15
ood culture ..	6		
rebro-spinal fluid ..	5	Total	215

he outstanding condition which has not been met ith in this series, and from which no strains have been solated, is erysipelas, although seven strains from utside sources were tested, and all were placed in he heterogeneous group. Nasal and throat strains ccount for about half of the total, and the majority f these strains were isolated from patients suffering from diphtheria; the strains isolated from the uterine cervix were all from patients suffering from puerperal fever; one strain from the spleen (post mortem), and one from blood culture were from the same case of septicæmia, while the lung puncture strain was from a case of broncho-pneumonia following measles.

The results of the serological examination of these 215 strains showed that 27 strains (12·5 per cent.) could be classed as belonging to one or other of the four main types of scarlatinal streptococci. The histories of the patients from whom these 27 strains had been isolated were inquired into more closely, and it was found that 19 out of the 27 patients had a history of recent infection with scarlet fever, or of contact with patients suffering from scarlet fever (one strain was from tonsillitis in a medical officer in charge of scarlatinal wards). Table III. (A) represents the distribution of these 19 strains among the four types, and shows the source of the organisms. The chief point of interest, to which reference is made later, is the absence of a type IV. strain.

TABLE III.—*Showing Sources of Scarlatinal Types of Streptococci, Isolated from Cases* (A) *with and* (B) *without History of Scarlet Fever.*

A.—WITH HISTORY OF SCARLET FEVER.

Type.	Throat.	Nose.	Abscess.	Empyema.	Mastoid.	C.-spinal fluid.	Urine.	Blood culture.	Total.
I.	2	2	2	3	1	–	–	–	9
II.	–	–	2	1	2	1	–	–	6
III.	–	1	–	–	–	1	1	1	4
IV.	–	–	–	–	–	–	–	–	–

B.—NO HISTORY OF SCARLET FEVER.

Type.	Throat.	Uterine cervix.	Blood culture.	Empyema	Total.
I. ..	1 (*b*)	1 (*a*)	1	1	4
II. ..	–	1	–	1	2
III. ..	1 (*d*)	1 (*c*)	–	–	2
IV. ..	–	–	–	–	–

(*a*) Strain isolated from a patient with puerperal fever, who was attended by the midwife from whose throat (*b*) strain was isolated.
(*c*) Strain isolated from a patient with puerperal fever, who was attended by the midwife from whose throat (*d*) strain was isolated.

When these 27 strains had been eliminated, there were left, out of a total of 196, eight strains which could be typed serologically, and in which no history of scarlatina could be traced—a total of about 4 per cent. Table III. (B) shows the distribution of these strains among the four types, and also the sources of the organisms. It may again be noted that there are no type IV. strains, and this finding is in agreement with the views of Gunn and Griffith,[7] and Allison and Gunn,[5] that type IV. streptococcus is associated with a very mild form of scarlatina of the type sometimes called "para-scarlet" by clinicians, that it never gives rise per se to complications, and has never been found as a secondary infecting agent in cases of scarlatina suffering from primary infection with another type. On the other hand, as it occurs in a mild form of the disease it does not appear to give rise to such a high immunity, and patients having a primary type IV. infection appear to be more susceptible to secondary infections—e.g., tonsillitis, adenitis, rhinitis, &c., due to infection in the ward from a different and more virulent type of scarlatinal streptococcus.

In Table III. (B) the type I. strains from blood culture and empyema were both isolated from cases of septicæmia. Type II. strain from empyema was from a case of measles, and the type II. strain from the uterine cervix was from a case of puerperal sepsis. The chief interest, however, lies in the two type I. strains from throat and uterine cervix, and the two type III. strains from similar sources. Both the strains from the uterine cervix were isolated from patients sent into hospital suffering from puerperal fever, and both the throat strains were isolated from midwives in attendance on the respective cases; one of the two midwives had nasal catarrh, but the other one was reported as normal. These two pairs of cases are of interest in that they agree with the views expressed by Armstrong,[8] King,[9] and others, that puerperal infection may arise by infection from the throats of persons in attendance on the patients; they also corroborate the results recently shown by Smith,[10] and support the recommendation of the Ministry of Health in the Interim Maternal Mortality Report (1930) that there should be a wider use of mask and more effective antiseptic precautions by doctors and midwives in attendance on midwifery cases. Infection of the puerperal patient by strains of streptococci associated with scarlatina from the throats of persons in attendance, as in the above-mentioned cases, may account for cases of puerperal scarlet fever which sometimes occur.

The strains of type I. and type III. scarlatinal streptococci isolated from throat and uterine cervix were obtained during an investigation of swabs from the throats of outside attendants on puerperal cases admitted to the puerperal fever unit of the North-Western Fever Hospital, and swabs from the patients were also examined after admission to hospital. During the course of the investigation it was found difficult in many cases to obtain swabs other than from the throat of the midwife in attendance, and in only a small minority of cases were swabs from the doctor's throat obtainable. In a number of cases hæmolytic streptococci were isolated both from the throat of the midwife or doctor attending the patient, and from the uterine cervix of the patient, but apart from the two pairs of cases already mentioned, out of a total of about 30 none of the others was serologically correlated, as the organisms were tested only against the four type sera for scarlatinal streptococci.

It has already been pointed out that 63 per cent. of hæmolytic streptococci from scarlatinal patients can be placed in the four serological types, and 31 per cent. are classed as heterogeneous. Among the strains under investigation, 8 out of 196 (4 per cent.) from non-scarlatinal sources (Table III.B) were typed, but it is probable that there may have been some heterogeneous strains of scarlatinal streptococci which were unrecognised, and if they occurred in the same proportion as in scarlatina the total of scarlatinal strains would be raised to 12 (6 per cent.).

In a series of 100 consecutive cases of diphtheria, hæmolytic streptococci were isolated from the nose or throat of 62 on admission to hospital, and in a similar series of 100 cases of measles hæmolytic streptococci were isolated from 32, but none of the 94 strains could be placed in any of the four main types of scarlatinal streptococci. This does not prove that scarlatinal types of streptococci do not occur in measles or diphtheria, as Table III.(B) showed a type II. strain isolated from an empyema following measles, and apart from these two series of cases, a type II. strain was also isolated from the throat in a case of diphtheria; it is probable that such strains are associated with outbreaks of scarlatina in diphtheria and measles wards.

The figures from these three series suggest that scarlatinal streptococci have a high degree of specificity, as out of a total of 396 strains from non-scarlatinal sources, only eight strains (2·02 per cent.) were found to belong to one or other of the four main types of scarlatinal streptococci, and even if heterogeneous strains of scarlatinal streptococci were present in the same proportion as in scarlet fever swabs (see Table I.), the total number of scarlatinal strains would be only 12 (3·03 per cent.).

SUMMARY.

1. Out of a total of 396 strains of hæmolytic streptococci, isolated from non-scarlatinal infections, only eight (2 per cent.) were found to belong to one or other of the four main serological types of scarlatinal streptococci. The results indicate the high degree of specificity of the scarlatinal streptococci, as 63 per cent. of hæmolytic streptococci from scarlatinal patients can be typed serologically.

2. Among the eight typed strains, a type I. strain and a type III. strain were isolated from uterine cervical swabs in cases of puerperal infection, while a type I. strain and a type III. strain were isolated from throat swabs of midwives in attendance on the respective patients. These results corroborate those recently shown by Smith, and support the view of many clinicians, that puerperal infection may arise by infection from the air passages of persons in attendance on the patients.

3. From 100 consecutive cases of diphtheria and 100 consecutive cases of measles, 62 strains and 32 strains respectively of hæmolytic streptococci were isolated, but none were placed in any of the main serological types of scarlatinal streptococci.

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A CASE OF MULTIPLE PERSONALITY

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A TRUE splitting of personality is sufficiently r to warrant a somewhat detailed description of a c which approximates very closely to the classi example of Miss Beauchamp described by Mort Prince.

In January, 1927, an unmarried woman, aged 3 came to me complaining of complete lapses consciousness. She described these lapses as perio in her life of which she was completely ignora but knew that during these periods someone performe actions, and wrote letters, antagonistic to her.

HISTORY OF THE CASE.

I am indebted to Dr. Richard Eager, superintende of the Devon Mental Hospital, for supplying me wit notes on her family and personal history:—

Her father died in 1891 from general paralysis at the ag of 36 in the Devon Mental Hospital. From Sept. 6th, 191 to August 1st, 1916, she was a patient in the Devon Ment Hospital; she had been certified as depressed and suicidal having swallowed a packet of pins. She was described a neurotic and introspective, and in May, 1914, had bee charged with writing letters about herself and accusin someone else of the offence. During her stay in the hospita she frequently spoke of suicide, and on occasions had inflicte slight wounds on her neck, wrists, and abdomen.

On Oct. 7th, 1915, she said she was a dual personality one person by day and another by night.

Dr. Eager states that during her stay in hospital she gained somewhat in weight, but showed herself to be a highly strung nervous person, always complaining of some che or illness which could not be accounted for and generally peaking, craving for sympathy and attention.

On her discharge from the Devon Mental Hospital he was sent to Dr. W. H. B. Stoddart at St. Thomas's Hospital, and I am much indebted to him for allowing me to make use of his notes and for the loan of letters nd photographs.

During 1916 and 1917 several different personalities were discovered by means of hypnosis. The outstanding personality appears to have been that of "Miss Dignity" which, it is to be observed, was the nly secondary personality revealed when the patient was under my care. Dr. Stoddart states that in her ne self there were seven or eight different personalities who were all ignorant of what any of the others id. Any one of them, could be called up at any ime, but in ordinary conversation the casual observer would be in touch with "Mabel" who, presumably, s the real self. One and another would keep popping up and any one of them would hear only part of -conversation. Even the handwriting of the different personalities was quite different. It was bserved that:

(1) "Mabel" herself is a good, patient, moral, and conomical soul without many faults but usually unhappy.

(2) "Miss Dignity" is a personality who considers it er duty to do all in her power to hurt Mabel. From time o time she has been persuaded to do good works, even to he extent of helping Mabel, but there was a persistent endency to relapse.

(3) "Biddy" is a bright, cheerful, laughing, helpful personality.

(4) "Hope" and (5) "Faith" are harmless and appear ut seldom.

(6) "Dame Trot" is similar.

(7) "Miss Take" was so named because when she first appeared she said that she did not know what her name was but that she was "just a mistake."

(8) Another unnamed one with an evil expression had been bserved.

After the position had been explained to them ome were more ready than others to accept their identity with Mabel. They were truthful, any one f them confessing to have done any given thing, while all the others would deny it quite truthfully because they knew nothing about it. Miss Dignity, or example, confessed that it was she who wrote the etters that led to the law case in 1914.

Miss Dignity periodically tore up Mabel's clothing, threw away her jewellery, and tore up her money, ll of malice aforethought. Some of the others had occasionally torn up money, thinking that it was valueless paper because they did not know that there was war and did not recognise the meaning of paper money. They did not, however, repeat the offence after it had been explained to them.

Dignity would get very malicious if she was not called up for some time. At one time she had torn up so much of Mabel's underclothing that she was unable to keep warm. On another occasion Dignity had thrown so much of Mabel's money away that she had to live on bread and one cup of tea a day. During this time she was in a very bad physical condition and suffered from hysterical loss of voice and some leg paralysis.

The letters from the different personalities to Mabel are in varied handwriting, some of them being unformed and childish. There was one from Dignity in which she urged Mabel to commit suicide and said that she enclosed a packet of poison.

LATER DEVELOPMENTS.

Ten years later the patient came under my care and was at that time aware of only one strange personality. This was the original Miss Dignity who was still employing the same virulent methods of persecution against Mabel. Several letters were produced in the handwriting peculiar to Dignity and containing threats directed against Mabel's social and religious life. Dignity was still busy tearing up her clothes, smashing her ornaments, hiding or destroying valued possessions, and misbehaving herself generally.

Between January and June, 1927, she came to my consulting room 28 times. Under hypnosis she would at once assume another personality during which period her speech, expression, and whole demeanour would change in a most remarkable way. On five occasions she entered my room as Dignity and under hypnosis would resume her real self as I knew it. One day she complained of severe pain on sitting down and walking which she failed to account for. When hypnotised Dignity told me that she had inserted a broken wineglass in her vagina to annoy Mabel. This story was afterwards verified and the pieces of glass removed.

The conscious mental reactions of the two personalities were strikingly opposed. Mabel was a strict Roman Catholic with high ideals, and she tried to live up to her principles. Narcissism was a very prominent feature, however, and she was continually seeking sympathy and protection from the persecutions of Dignity. It was difficult for her to believe that her second self was really only a part of her own abnormal mind. She reluctantly informed me, however, that in her childhood days her father was in the habit of calling her "Little Miss Dignity." In the part of Dignity the instinctive side gains an important outlet, and through this channel the ego is able to find much satisfaction in the fulfilment of its repressed wishes. Dignity was in conflict with society, and therefore very antagonistic to Mabel and her strict religious life. Dignity was very negative to me, and was continually trying to prevent my attempts to destroy her personality by fusing it with Mabel's. To Dignity this meant renunciation and the destruction of her pleasure principle. This second personality possessed well-developed erotic tendencies which were not apparent in Mabel. She admitted, for instance, that she had inserted the glass in her vagina in order to experience the erotic satisfaction of its removal by me. There was little or no modesty, which in Mabel's case was a well marked feature.

PATHOLOGY AND TREATMENT.

I regard this splitting of personality as an exaggeration of the ambivalent tendencies found in the mor usual neuroses. As I pointed out in a previ paper,[1] there is a personification of the unconsc in these true cases of dual personality. In the ordin fugue there is no independent consciousness at This patient dramatised her unconscious state. This appears to me to be the important distinction between true cases of second personality and the more common fugues or other forms of dissociation. In these rare cases there is a distinct state of consciousness completely cut off from the normal waking state of the mind.

The question of treatment is difficult. I have found that it is possible to fuse the personalities up to a certain point. As far as I know, there is no case on record which has been treated by psychoanalysis, but I am convinced that this is the only method holding out any hope of a complete cure. Should the personalities appear to be fused, as they certainly seemed to be in this case, there is always the underlying neurosis to be accounted for. In this

(Continued at foot of next page.)

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[1] THE LANCET, 1923, i., 1155.

two pairs of cases are of interest in that they agree with the views expressed by Armstrong,[8] King,[9] and others, that puerperal infection may arise by infection from the throats of persons in attendance on the patients; they also corroborate the results recently shown by Smith,[10] and support the recommendation of the Ministry of Health in the Interim Maternal Mortality Report (1930) that there should be a wider use of mask and more effective antiseptic precautions by doctors and midwives in attendance on midwifery cases. Infection of the puerperal patient by strains of streptococci associated with scarlatina from the throats of persons in attendance, as in the above-mentioned cases, may account for cases of puerperal scarlet fever which sometimes occur.

The strains of type I. and type III. scarlatinal streptococci isolated from throat and uterine cervix were obtained during an investigation of swabs from the throats of outside attendants on puerperal cases admitted to the puerperal fever unit of the North-Western Fever Hospital, and swabs from the patients were also examined after admission to hospital. During the course of the investigation it was found difficult in many cases to obtain swabs other than from the throat of the midwife in attendance, and in only a small minority of cases were swabs from the doctor's throat obtainable. In a number of cases hæmolytic streptococci were isolated both from the throat of the midwife or doctor attending the patient, and from the uterine cervix of the patient, but apart from the two pairs of cases already mentioned, out of a total of about 30 none of the others was serologically correlated, as the organisms were tested only against the four type sera for scarlatinal streptococci.

It has already been pointed out that 63 per cent. of hæmolytic streptococci from scarlatinal patients can be placed in the four serological types, and 31 per cent. are classed as heterogeneous. Among the strains under investigation, 8 out of 196 (4 per cent.) from non-scarlatinal sources (Table III.B) were typed, but it is probable that there may have been some heterogeneous strains of scarlatinal streptococci which were unrecognised, and if they occurred in the same proportion as in scarlatina the total of scarlatinal strains would be raised to 12 (6 per cent.).

In a series of 100 consecutive ca ; the pain
hæmolytic str en morphia is required.
or t During the act of spraining an ankle, excessive
simil ement undoubtedly takes place at the sub-
stre agaloid and mid-tarsal joints, as shown by
94 sion and injury to ligaments; therefore, when
passive movements are started, remember to put these
joints, as well as the ankle-joint, through their full
range of movements.
s 6. After a sprained ankle, there is a tendency for
and

strain
diphth (*Continued from previous page.*)
associate simply a shifting of anxiety and guilt from
and measle another. The alternation of personality
The figur incide with certain emotional phases, and
scarlatinal st these phases by means of hypnosis
specificity, as o ge. This does not mean sublimation.
scarlatinal source ient in consultation with another
were found to be we were unable to persuade her
main types of scar that time. Subsequent police-
heterogeneous strains which I appeared as a witness
present in the same p evident that although I was
swabs (see Table I.), the rsonalities I had not cured
strains would be only 12 (3

SUMMARY.

1. Out of a total of 396 strains of hæmolytic streptococci, isolated from non-scarlatinal infections, only eight (2 per cent.) were found to belong to one or other of the four main serological types of scarlatinal streptococci. The results indicate the high degree of specificity of the scarlatinal streptococci, as 63 per cent. of hæmolytic streptococci from scarlatinal patients can be typed serologically.

2. Among the eight typed strains, a type I. strain and a type III. strain were isolated from uterine cervical swabs in cases of puerperal infection, whilst a type I. strain and a type III. strain were isolated from throat swabs of midwives in attendance on the respective patients. These results corroborate those recently shown by Smith, and support the view of many clinicians, that puerperal infection may arise by infection from the air passages of persons in attendance on the patients.

3. From 100 consecutive cases of diphtheria and 100 consecutive cases of measles, 62 strains and 32 strains respectively of hæmolytic streptococci were isolated, but none were placed in any of the main serological types of scarlatinal streptococci.

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A CASE OF MULTIPLE PERSONALITY

BY ROBERT M. RIGGALL, M.R.C.S. ENG.,
L.R.C.S. EDIN.,

HON. CLINICAL PSYCHOLOGIST TO THE WEST END HOSPITAL FOR NERVOUS DISEASES; HON. PHYSICIAN TO THE PSYCHO-ANALYTICAL CLINIC.

ugh the ankle and surg
A TRU the muscle will help to absorb de
ed effusion quicker than any other form of tr
ment. These can be applied from the first and t
value can be estimated by the rapid return of
ankle to normal. (4) At the end of the week allow
patient up with the foot supported either by strapp
a firm bandage, or an elastic anklet. Massage
physiotherapy are continued until full range
active movements is obtained without pain. T
patient should carry out exercises.

Severe Degree with Fracture.—The same treatme
as for the last group is applied, except that the pati
is confined to bed for ten days; movements are n
started until the seventh day; and the patient, wh
allowed up, must have his foot firmly strapped f
at least three weeks.

I now suggest an alternative method for the la
two degrees of sprain, which is applicable to patien
unable to rest for longer than two or three day
The foot is firmly strapped so that damaged structur
are well supported and the range of movement limite
to a minimum. The patient is advised not to plac
the foot on the ground, but to walk with a crutc
or the support of a stout walking stick. If possibl
each day the ankle is given massage and physic
therapy treatment, as indicated before, over th
strapping, but if this is out of the question the foo
is left strapped for three weeks, after which time th

strapping is removed and massage and physiotherapy treatment are started. If the foot is left strapped for three weeks, strong adhesions may have formed, which would necessitate a manipulation of the foot under an anæsthetic before massage and physiotherapy is commenced.

CHRONIC SPRAINED ANKLES.

Under this heading are considered :—

(a) Those cases that have had a certain amount of treatment but experience pain, localised to a particular part of the ankle, and limitation of movement. These symptoms are due to one or all of the following: (1) Damaged structures being maintained in a wrong position and therefore stretched. (2) Teno-synovitis of one or several of the tendon sheaths. (3) Unabsorbed effusion in the subastragaloid and mid-tarsal joints. (4) Adhesions, especially posteriorly around the tendo Achillis, and around either malleolus.

If this class of sprain is seen within the first month, massage, movements, and physiotherapy is undoubtedly the best treatment, with the ankle supported in the correct position. If seen after the first month, the quickest method to obtain a supple, painless foot is to manipulate it through its full range of movements under an anæsthetic, in order to break down adhesions, following up with massage and physiotherapy treatment. Exceptions to this last method are those cases where a damaged ligament or muscle is stretched, as proved by tenderness over it, without limitation of movement; in which case the structure is put in a position of rest, by strapping the foot, and measures are taken to strengthen the muscles.

(b) Those cases in which a slight sprain occurred one to three weeks previously, and suddenly, usually after exercise, there is pain under the scaphoid, due to stretching of the ligaments and a tendency for the foot to become flat. Manipulation, followed by massage and movements, will break down adhesions and help to restore the tone of the muscles. The patient should be encouraged to do exercises and a valgus support may be necessary for a short time.

(c) Those cases in which the ankle is continually twisting. The object here is to strengthen the muscles, especially the peronei, and it is best accomplished by applying surging faradism to the muscles and carrying out appropriate exercises, such as contracting the muscles against an obstruction—e.g., attempting to evert the foot against a wall.

(d) Those cases which occur in older people, and who develop traumatic osteoarthritis. Treatment for these comes under the following headings: (1) Heat, massage, diathermy. (2) Valgus support, either raising the inner side of the shoe or an aluminium support. Undoubtedly some of these methods are open to criticism, but if they were carried out, sprained ankles would not develop the painful complications—such as teno-synovitis, a painful rigid foot from adhesions, or osteoarthritis—which help bone-setters and osteopaths to thrive.

SUMMARY.

(1) There are two main types of sprained ankle. (2) X ray all sprains except mild ones. (3) Rest in bed or on a couch for a period all sprains except the mildest. (4) While resting, encourage active and passive movements without producing pain. (5) Give an analgesic and hypnotic for the first night, at least in bad sprains. (6) When putting the ankle through movements remember subastragaloid and mid-tarsal joints as well. (7) If pain and limitation of movement persist after one month, manipulate. (8) Support the ankle in convalescence.

TREATMENT BY OCTOZONE.

By Oscar Parkes, O.B.E., M.B. Birm.,

and

C. H. Buckley, M.R.C.S. Eng.

Oxidation is the most vital process in the body metabolism, and disinfection depends largely upon it. For this reason the discovery by E. Royer, of Lyons, of a method of producing a new form of ozone which has safe and rapid powers of oxidation deserves consideration.

The gas, which Royer has called octozone, is produced simply and quickly by passing oxygen at a pressure of about 5 lb. through an apparatus called the electroniser, in which it is subjected to the action of a silent electrical discharge. Octozone may be described as a very concentrated and exceedingly potent form of ozone.

Considerable difficulty has been experienced in efforts to determine the exact formula of the gas, and various chemists have labelled it as O_3, as O_4, and as O_8. It is probably a mixture of various combinations of oxygen, and so far it has not been possible to come to any definite decision as to its true composition. A spectroscopic photograph taken in the laboratory at University College of gas carried there in a doped fabric envelope, only showed the bands in the ultra-violet which are characteristic of ozone, and Mr. S. Barrett, who conducted the tests, was of the opinion that the specimen could best be described as a form of concentrated ozone produced by a method new to his department, and having properties not previously observed in ozone produced by passing oxygen through a silent electrical discharge.

Naturally, the gas is unstable and rapidly changes when exposed to the air, its characteristic pungency giving way to the sweeter smell of nitrous oxide. It is soluble in water, giving a practically tasteless solution. Stored in glass containers (blacked, or away from light) or aluminium bottles, it retains its properties for some days.

Its oxidising powers tested against various rubber compounds are very rapid, red surgical rubber being perished in under 30 seconds. It quickly deodorises fats and soaps, and its bleaching and other properties are what would be expected from a gas of its nature.

THERAPEUTIC PROPERTIES.

Its use in treatment depends upon its rapid absorption by the body tissues. Although it is far too pungent to be inhaled, it is harmless when applied properly, either externally or internally, and several methods are employed for treatment purposes.

(1) *General external application* ("*bath*"). The patient is enclosed up to the neck in a fabric suit which is filled with the gas, and absorption takes place through the skin. Exposure is from half to one hour, and the gas is exhausted from the envelope before the suit is removed. As the suit has often to be replenished during treatment, the amount absorbed must be considerable, for even a slight leakage is quickly apparent and must be stopped. There is no chill or unpleasant sensation, and the patient is usually sweating when the hour is up. Even during the first bath increased mobility of the joints may be experienced in rheumatic cases.

(2) *Local external application* in arm or leg bags, for varicose ulcers, skin conditions, wounds, &c.

(3) *Intramuscular injections*, which may be rendered painless by local anæsthesia if necessary. The gas is so quickly absorbed that practically no bleb is formed.

(4) *Injection* into, or spraying around, a local abscess.

(5) *Rectal injections*, when up to 700 c.cm. can be given at one sitting without discomfort.

(6) Drinking it dissolved in water, when it acts as a gentle laxative.

Octozone has the properties of a disinfectant without the drawback of a base which may be injurious. Its action when applied in the "bath" is to complete the oxidation of waste products (lactophosphate of lime, &c.) deposited in the subcutaneous tissues, muscles, and fasciæ, and to set free lactic acid. The reaction of the sweat after a "bath" is strongly acid. In some patients the capacity of the skin to effect elimination of waste products is limited—or the amount of acid set free is beyond its capacity—and the period of the "bath" must be curtailed in order to avoid the appearance of a rash somewhat similar to gouty eczema. Rectal injections may be substituted.

Local baths, spraying, and injections of the gas have a rapid action on wounds and ulcers, and the deep injections down over the hip-joint and on to the sciatic nerve have given excellent results in cases of arthritis and sciatica.

ILLUSTRATIVE CASES.

The following cases are typical:—

Varicose ulcers.—Mrs. A., aged 53, charwoman. Two varicose ulcers left leg. Size two-shilling piece. Duration, two to three years. Had hospital treatment nearly all the time, without improvement. Pain getting worse. March 25th, 1931: Ulcers sprayed for two minutes and 20 c.cm. gas injected under edge of each ulcer. Dirty wash-leather looking slough. March 26th: Ulcers dry. No discharge, treatment repeated. March 28th to 30th: Treatment repeated. March 31st: Injected 10 c.cm. only since ulcers were the size of split pea and healthy. No pain experienced since first treatment. April 8th: Ulcers healed and patient discharged. Gauze and bandage only.

Neuritis.—Mr. B., aged 58, neuritis left arm and shoulder for two years. Patient had free use of the limb but complained of aching and shooting pains. March 20th, 1931: Bath for three-quarters of an hour followed by c.cm. of gas in left shoulder muscles. March 26th: ient said that "all pain had gone and relief was wonder- April 4th: Bath for half an hour. No pain. l 23rd: Called to report no return of pain.

Sciatica.—Mr. C., aged 70, chief steward, at sea. Duration some months and has been away from duties. Walks with difficulty. May 27th: Bath, 1 hour; 100 c.cm. gas injected into region of sciatic notch. Result: Much pain for ten minutes, then complete relief from pain. Walked from room quite well. May 28th: Repeated bath for one hour; 250 c.cm. rectal injection. Improvement continues. Slept well. No pain on walking or sitting. May 29th: Repeated bath and bowel injection. No pain; discharged cured. June 12th: Patient reported no return of pain. Had returned to duty on May 30th.

Arthritis.—Mrs. D., aged 49, arthritis shoulders, hands, wrists, and slightly in ankles. Duration 16 years. Unable to raise hands above level of shoulders, nor fully close fingers. No grip. March 20th, 1931: Bath, half an hour. March 24th: Bath, three-quarters of an hour; patient states that shoulders and hands are easier and looser, and grip returned. She had been able to use the washing wringer for the first time in three years. March 25th and 31st: Bath, half an hour; 250 c.cm. rectal injection. April 8th: Bath, three-quarters of an hour; 250 c.cm. and 50 c.cm. in right shoulder. She stated that she had used the wringer daily and that pains had left her.

Carbuncle.—Mrs. E., carbuncle at back of neck. One small opening, and pointing in other places. Cannot flex or even move neck. April 17th: Injected 30 c.cm. gas. April 18th: Painless. Can move neck in all directions, discharge free with less inflammation; injected 50 c.cm. April 19th: No discharge. Carbuncle fully cured.

We saw results at the Lyons clinic which enlarged our conception of the possible applications of the gas—for instance, feet suffering from diabetic gangrene, with perforating ulcers, which, after about 20 treatments, had become normal in colour and bade fair to regain normal outline. It is to be hoped that Royer's results with cystitis, vaginitis, and post-operative conditions will be confirmed.

BRITISH MEDICAL ASSOCIATION.

ANNUAL MEETING IN EASTBOURNE

SECTION OF OTO-RHINO-LARYNGOLOGY.

Vertigo.

At the second session, Mr. F. W. Watkyn-Thomas read a paper on vertigo in suppurative conditions of the middle ear. The only barrier to infection between the perilymphatic spaces of the internal ear and the endolymph was, he said, the flimsy wall of the membranous labyrinth. The perilymphatic spaces communicate directly with the cerebro-spinal space via the sheath of the eighth nerve and the aqueduct of the cochlea; infection of these spaces therefore seriously endangers the life of the patient. It is separated from the middle ear by the bony capsule of the labyrinth and the lining endosteum, but at the fenestræ the endosteum alone is present, though reinforced by the foot-piece of the stapes in the fenestra ovalis. If this barrier is passed by infection there will be a short period of irritation followed by one of destruction. Vertigo in aural suppuration he divided into three classes: where the labyrinth wall (1) is intact, (2) has yielded to infection, (3) where the infection has reached the posterior fossa. Vertigo might be due to changes of pressure caused by ankylosis of the ossicles, or to changes of pressure in the middle ear, or to abnormal sensibility due to exposure of the inner wall of the middle ear, when exposure to cold could set a vertiginous storm in action. Infective processes having reached the labyrinth there might be (*a*) a circumscribed labyrinthitis limited to a small portion of the canal system, (*b*) a serous labyrinthitis due to a toxic but not a bacterial invasion, or (*c*) a suppurative labyrinthitis. The last condition was due to microbic invasion either by one of the windows or by an erosion through the bone. In acute suppuration of the middle ear invasion was likely to occur through the windows, more often the oval. In chronic suppuration invasion more commonly occurred through the wall of the external canal or through the promontory. Thus in acute conditions acute labyrinthitis was more common and was likely to be followed by meningitis. In chronic conditions the labyrinthitis was more likely to be chronic in type and limited in extent, with a less grave risk of meningitis. In the early stages of affection of the labyrinth the signs and symptoms were due to the excitability of the affected labyrinth. In the later stages the labyrinth ceased to react, and signs were due to the uncompensated activity of the healthy labyrinth. The slow component of the nystagmus, the error in pointing and the falling were away from the more active labyrinth. The fistula sign when present proved the activity of the labyrinth, but really disproved the existence of a fistula, or the labyrinth would be dead; it was of no value in showing the site of the lesion. In diffuse suppurative labyrinthitis destruction was quickly reached, with signs from the healthy labyrinth. Compensation was achieved, with loss of falling, past pointing, and nystagmus, after a variable period, which is shorter if the labyrinth is opened and drained.

DISCUSSION.

Mr. E. D. D. Davis said that vomiting was only an expression of the degree of intensity of vertigo. Ménière's syndrome was due to some affection of the internal ear or of the auditory nerve, not to small hæmorrhages into the labyrinth. He was doubtful as to the part played by Eustachian obstruction in production of vertigo. It was only rarely that operation on the labyrinth was necessary, more often rest, avoidance of further irritation, and administration of bromides were sufficient. He wished for simpler tests that could be applied to a patient seriously ill in bed.

Sir JAMES DUNDAS-GRANT said that cases diagnosed as Ménière's syndrome were often suffering from syncopal attacks due to arterio-sclerosis. In vertigo the possibility of a ponto-cerebellar angle tumour must be borne in mind. The effect of suction was much greater on a bare fenestra than on a fistula into the horizontal canal.

Mr. E. MUSGRAVE WOODMAN related successful results in six out of seven cases he submitted to Portmann's operation. The operation was not severe, and the patient able to go out at the end of a week.

Dr. DAN MACKENZIE said that giddiness was an extremely common symptom, and often diagnosed as biliousness. A dead labyrinth was completely deaf, but sounds might be conducted by a bone to the opposite ear.

Mr. HERBERT TILLEY related cases of vertigo entirely due to Eustachian obstruction; and Mr. W. M. MOLLISON considered this cause of vertigo a very important one. He described cases of hyper-excitability.

Subacute Otitis Media.

Mr. A. LOWNDES YATES said that subacute differed from acute otitis in that the Eustachian tube was partially open, and the products of inflammation could drain from the ear through it. In children it was characterised by evanescent pain and a temporary bulging of the tympanic membrane. Loss of hearing was similar to that in acute otitis after perforation or myringotomy. In the more severe cases of subacute otitis the membrane should be incised, and in certain cases it might be necessary to perform some operation on the mastoid process to promote drainage. Subacute otitis was of great importance in the production of deafness, and it was more difficult to diagnose, as the symptoms were not well marked or definite. In adult life subacute otitis was characterised by deafness which varied from day to day, and by recurring attacks of pain. There might be difficulty in distinguishing conversation, although sounds were heard distinctly. This was known as confluent deafness, and was said to be uncompensated. Compensation occurred when sounds were not heard distinctly but conversation was intelligible. In early stages the drum head might be less translucent than usual, and the cone of light displaced or distorted. The membrane looked less concave, but this could be altered by applying pressure or suction with a Seigel's speculum, and sometimes it might be possible to demonstrate the movement of fluid in the middle ear. In mucopus aspirated from the Eustachian tube or middle ear and examined on the warm stage, leucocytes would be seen, and organisms most of which were intracellular. If the organisms disappeared in an hour and a half recovery was certain, if in three hours it was probable, but if they remained in the fluid after this period, and the leucocytes disappeared, the prognosis for hearing was comparatively bad. There was also, in adults, an atrophic form of subacute otitis in which pus was not formed owing to the non-production of leucocytes. In the early stages a little fluid might be formed, but eventually the ear became dry with a transparent membrane, and the inner wall of the tympanum, denuded of its epithelium, showed red through the drumhead. Deafness tended to follow and to be progressive, but treatment of the Eustachian tube in the early stages might prevent its onset.

Acute Otitis Media.

Mr. H. V. FORSTER mentioned, among the causes of acute inflammations of the middle ear, the common cold, influenza, and the exanthemata, measles being the most common agent, followed hard by scarlet fever, in which otitis tended to occur at an earlier stage. In children there was a latent type of otitis with marked general but few local symptoms; the tympanic membrane was more difficult to see than in the adult on account of the angle at which it is placed. Apparently there was an hereditary factor, otitis being common in members of certain families. In cleft palate the middle ear almost always showed signs of disease. Atrophic rhinitis was a very common cause of middle-ear disease, whilst the oft-blamed adenoid vegetations were not invariably the cause, as otitis might occur years after their perfect removal. The early signs of acute otitis were injection of the membrane and swelling, which might obscure the handle of the malleus. The tympanic membrane should be incised if the patient had lost one night's sleep and seemed likely to lose another. After-treatment consisted in frequent removal of the secretions, either by mopping or irrigation, and in keeping the incision open. The pain of otitis media was to be distinguished from that due to tuberculous laryngitis, malignant disease of the larynx, tongue, pharynx, or pyriform fossa, conditions of the tonsil, and lesions of the molar teeth. Mumps, dental abscesses, and furunculosis had to be considered, and external otitis might present difficulties. Cerumen and foreign bodies might overlie an acute otitis media, and herpes zoster and primary otic erysipelas might simulate it.

SECTION OF HYDROLOGY AND CLIMATOLOGY.

THE second session of this section, at which Dr. PERCY LEWIS, Vice-President, took the chair, began with a discussion on the

Control and Treatment of Arthritis.

Dr. C. W. BUCKLEY held that the rheumatic and tuberculous diseases were analogous and required the same kind of handling. Causal errors of living and environment, unless removed, led to an incurable condition. Causal factors in arthritis included abnormal susceptibility to climatic influences, damp cold in houses or district, deficiency of sunlight, depressing occupation, and errors in clothing and diet. The resistance of the body to such influences must be increased, especially by re-education of the protective functions of the skin, by means of light and loose clothing, bathing, and friction. Exposure to light favoured the production of vitamin D, an important factor in resistance to rheumatic diseases, but excess of sunshine was ill-tolerated; the scantily clothed girls of to-day suffered less from rheumatic diseases than did the earlier generation. Heat, while often useful as a local remedy, was often harmful when applied generally. A meat diet was beneficial; fruit essential; even acid fruits harmless. Carbohydrates should be restricted in view of lowered sugar tolerance, but not so far reduced as to cause loss of weight. Soft white bread and cooked farinaceous foods tended to bad teeth, vitamin deficiency, and constipation, all factors in the ætiology of arthritis.

Disordered capillary circulation was a noteworthy feature in the pathology of arthritis, and diminished blood-supply to the joints must be combated by exercise, hydrological measures, and massage. Dr. Buckley held that only in climacteric arthritis was an endocrine factor established, and that suprarenal deficiency was important. Attention to possible foci of infection was essential, but much harm might be done by vaccines, as in the early use of tuberculin. The first doses should be minimal, and morning and evening temperature recorded, as well as every variation in symptoms. Further research was urgently needed and this country was falling behind, not for want of willing workers, but because their efforts needed encouragement and coördination.

On the motion of Dr. BUCKLEY the following resolution was carried:—

> "That this section recognises the urgent need for encouragement and coördination of research into the causes and treatment of arthritis, on the lines adopted in many continental countries, and urges the Council to undertake this by the appointment of a special committee or in some other suitable manner."

Dr. W. S. C. COPEMAN regarded diet idiosyncrasies as quite as important as drug idiosyncrasies. In spite of the loose and scanty clothing adopted by women in recent years, rheumatism was still very common in young adults. He described the night sanatoriums recently opened in Russia, where individual workers who are still fit for work sleep and get suitable meals and treatment in the early stages of disease.

Dr. FORTESCUE FOX agreed with continental writers that "hardening" was often injurious to rheumatic subjects, and should be practised with much caution for persons affected with chilliness and poor circulation. In any case it was necessary to increase the circulation by heat before the application of cold, as in the "peoples' baths" of northern countries. The observations lately published on the rapid clearing up of (acute) rheumatic illness in children simply by a change of several months from New York to Porto Rico were a convincing demonstration of the determining influence of climate upon those forms of disease.

Dr. J. L. DELICATI suggested that rheumatoid arthritis was due to some failure of coördination between the two parts of the sympathetic nervous system.

Dr. K. R. C. HALLOWES had found that the rheumatic response to climate varied considerably. After hot baths most patients did better with a cold spray and light covering than with the usual half-hour's sweating.

Mr. HARMAN TAYLOR considered that the application of Hilton's law of rest and pain had been carried too far. He had obtained good results since adopting early exercise in the treatment of arthritis.

Hyperpiesia.

Dr. W. EDGECOMBE and Dr. CURTIS BAIN communicated a paper on hyperpiesia, dealing mainly with its treatment by physical methods. Reports on the effects of physical treatment on systolic readings alone were worthless. A sustained pressure of 150/90 signified potential hyperpiesis. The blood pressure varied, and was apt to rise quickly at times; cardiac and arterial changes followed, the latter best observed in the retina. Death occurred from hæmorrhage or failure of the heart or renal elimination. Dr. Edgecombe and Dr. Bain suggested that hyperpiesia is a deficiency disease. The potential hyperpietic required active preventive treatment. Measures which dilate the vessels and widen the collective stream delayed the progress of the disease. Peripheral vasodilatation and fall of blood pressure, more enduring than that produced by drugs, could be effected by physical treatment, such as baths at or above body heat, still or effervescent, the massage-douches, and massage; diathermy being of considerable value. The result continued for a time after each bath, and was cumulative over a series. Charts were shown of "true essential hyperpiesis," under observation for periods of years, and in which timely treatment of this kind appeared to cure or arrest the condition; also others in which an annual course of baths and waters afforded temporary relief in advanced cases. These latter required careful watching, lest pressures should fall too rapidly.

Dr. FOX agreed that waves of high pressure were associated with certain periods of life, such as the climacteric in both sexes and later at 62 or 63, when cerebral hæmorrhage was especially common. He had found venesection followed by saline waters and baths of great preventive value in such cases.

Therapeutic Pools.

Dr. R. G. GORDON recalled the fact that thermal pools were used for tired Roman legionaries or as a mode of sensuous relaxation, as at Baiæ. The pool in use at the Royal Bath Hospital was at least 100 years old. Pools having chemical or physical properties were used with good effect during the late war, especially in cases of paralysis, and had led Dr. Gordon to construct a therapeutic pool at Bath. The size and capacity (20 by 20 feet, 10,300 gallons; temperature 104°) enabled exercises, with or without an attendant, to be carried out, and helpless patients could be lowered into the water. With Dr. Gibson he had induced a body temperature of 106° in a patient immersed in water at 108° for 50 minutes. The temperature of a healthy person in the pool for 30 minutes rose to 103°, as shown by a self-recording thermometer, with diaphoresis and corresponding loss of weight. Visceral activity and metabolism increased. The dilatation of the surface capillaries probably increased the nutrition of distant parts, since it was now believed that only 10–15 per cent. of the capillary bed is usually patent. Increased elimination of toxins and a definite leucocytosis had been demonstrated. Muscular relaxation, relief of pain, and reduction of the load of gravity by 95 per cent. were other effects of the pool. Dr. Gordon had treated nerve injuries after the war and old-standing poliomyelitis in children, with relief of pain, increase of circulation and of movement under a minimal load. These were optimum conditions for re-education. Some cases of congenital diplegia and athetosis have improved, also specific spinal myelitis and disseminated sclerosis when combined with other measures. Some improvement in balance and control had been noted in Parkinson's disease and after encephalitis and in tabes dorsalis. The pool might be used for joint diseases, especially chronic hip cases, and was very helpful for re-education after splints as in the congenital hip dislocations of children.

Dr. FOX regarded the large pool bath of flowing water at a determined temperature, sometimes aerated, as the most generally useful of all baths. It could be stimulant or sedative according to its temperature in relation to the body and the degree of movement in the water. Its wide range of physiological effects had therapeutic applications to many forms of injury and chronic disease—nervous, mental, the asthenia of middle or later life, circulatory atonia

(Continued at foot of opposite page.)

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE.

SECTION OF THE HISTORY OF MEDICINE.

At a meeting of this section, held on Oct. 7th, Dr. R. O. Moon delivered his presidential address on

Van Helmont: Chemist, Physician, Philosopher, and Mystic.

He described van Helmont as the founder of the iatrochemical school of medicine, and a man who had taken all the realm of knowledge for his province. Born in 1578, of a noble Brussels family, he had been characterised in youth by an inexhaustible search for knowledge. After studying stoicism and rejecting it as a form of pride, he had, in turn, considered the Church, law, and botany as careers; and botany at length had led him to medicine, despite his fear that so plebeian an occupation might stain his noble pedigree. His diligence had been amazing; he had learned the aphorisms of Hippocrates by heart. Gradually he had become dissatisfied with the "deceits" of which medicine seemed to him to be full, and a study of mystical works had decided him to abandon his profession. He had then travelled in all parts, but everywhere had found the same sluggishness and ignorance. In 1605, therefore, he had returned to Antwerp, where the plague was raging, and his sympathy with mankind had led him to take up medicine again.

He had embarked on a campaign against conventional beliefs. Of a more disciplined mind than Paracelsus, he had been strongly opposed to deductive logic, believing that real knowledge must involve intuition. True sciences, he said, could not proceed to demonstration, and could not be brought to light by logic. He had thrown much fresh light on chemistry, his discoveries including that of carbonic acid gas, which he had called "the wild gas" because of its incondensibility. His progress had been hindered by his firm belief that water was the first matter or material cause of all things. He had realised that metals continued to exist through a variety of chemical changes—a belief much in advance of his age—and had also studied quantitative chemistry. He had regarded all organic processes as based on chemical events presided over by a hierarchy of spiritual forces; death was the loss of the spiritual restraint, and disease its failure to govern aright. Over and above these forces he had thought there was a sensitive, mortal soul, coexistent with mind, received by man at the Fall. This soul he had located in the pit of the stomach, as a blow there destroyed consciousness, but he had regarded its influence as diffused throughout the body.

His views on digestion had been much in advance of his time; he had compared it with fermentation rather than with cooking. He had also rejected the current view of fevers, and pointed out that heat was a symptom and not a cause of fever. He had been strongly opposed to venesection, describing it as "a bloody Moloch." He had closely followed Paracelsus in therapeutics, using laudanum and mercury. His great object had been to pacify and appease the "spiritual force" (archæus) whose anger he held responsible for the illness. He seemed to have known nothing of Harvey's great discovery. He had failed to understand respiration, but had rejected the current view that the chief function of the air was to cool. Strangely, he had believed in the power of Paracelsus's sympathetic ointment to cure wounds; his insistence on magnetic value had brought him into conflict with the Roman Catholic Church, of which he had been a devoted son, and many of his works had been condemned by the Inquisition. Later he had been imprisoned in his own house. He had united the passionate belief of the devoted Catholic with the free outlook of the inquirer, and his life had illustrated the conflict between belief and science. He had had frequent visions throughout his life, and had attached great importance to them.

No man, Dr. Moon concluded, was more likely than the physician to come across phenomena which no logical system could cover; he was very liable therefore to be attracted by fanciful explanations to meet his difficulty.

Vitalism.

Prof. A. Wolf opened a discussion on vitalism, with special reference to van Helmont, whose "archæus" had been, he said, a very anthropomorphic conception, which had descended down several lines. The doctrine of "form" had arisen with the Pythagorean school. Side by side with it was the old Greek conception of "psyche," divided into three kinds: the vegetative, the sensitive, and the rational. Over and above this tradition another line had helped to develop the idea of archæus: cabalistic mysticism. The doctrine of form—not to be limited to the idea of shape, and often nothing to do with it—stressed the importance of the actual arrangement of substances in the whole. Pythagoras had first observed it in the study of sound; the platonic "idea" was the same thing. Aristotle had maintained that to know anything—living or inanimate—adequately it was essential to know what stuff it was made of and its form. The term "form" had been consistently and quite mistakenly associated in mediaeval times with some kind of soul or spirit, and endless trouble had resulted. The term "archæus"—simply meaning "ancient"—had been used by mystics from neoplatonic times onwards in reference to God, as in Daniel VII., 9, "the Ancient of days." Van Helmont had compared light with life, and had then remarked: "In reality life in general is God." He had really regarded the archæi as fragments of God.

Modern vitalistic tendencies, continued Prof. Wolf, had a negative and a positive side, but people were only really agreed about the former; that it was impossible to understand or explain the great majority of living phenomena on strictly mechanical principles. The question was: what "something else" was to be added. One school of vitalism—substantial vitalism—represented the "substantial

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and hypertonia, chronic dermatoses, and many gynæcological and so-called rheumatic conditions. Some persons were unaccountably far more sensitive to external heat than others, and the temperature must be adjusted with care. He had recently visited certain pools in Trans-Jordania, much frequented by the Arabs since ancient times. Many of them when unwell spent half a day in one or other of the hot pools. Cardiovascular debility from the incautious use of heat was too common, but could be easily avoided.

forms" of the Middle Ages and the "archæus" of van Helmont, and credited these subtle forms with anything that could not be explained otherwise. This did not explain anything. The more scientific school simply recognised that something else must be invoked; that many activities resulting from certain collocations of facts and phenomena could not be anticipated from existing knowledge of the elements and the laws governing them. This merely described what happened under these complex conditions, and was a sound procedure. It recognised that new functions and activities might emerge under complex conditions. The divorce of science from philosophy and theology, said Prof. Wolf, was an excellent thing. Science was a kind of game with certain rules, and only certain things could be studied and understood by the rules of that game; nothing but mischief could result from trying to fuse science, philosophy, and theology.

Dr. **O. L. Brady**, speaking as a chemist, felt that the whole idea of vitalism in science was a confession of failure, and likely to do more harm than good. It cropped up periodically as a kind of retreat from a difficult position. At one time it had declared that organic compounds could never be made from inorganic, but now many important compounds could be synthesised. To accept the idea that there was something outside a purely mechanistic system was to risk shirking responsibilities. There might be another force than those known, but that force would be just as universal as any other, and by no means peculiar to living beings. Van Helmont, as discoverer of the first synthetic organic compound—carbon dioxide—was a peculiarly interesting study. He had been almost the first of the scientific chemists. It was remarkable how the misunderstood Aristotelian doctrines had lasted, even beyond the time of Boyle. Everyone sought a catchword to explain what they could not understand, and in this lay the appeal of vitalism.

Prof. **Fraser Harris** said that modern vitalism was narrowed down to ideas on the nature of consciousness. The phrase: "Consciousness as cause of new activity and necessary for a new result" formed a keyword. In the sensori-motor reflexes consciousness was present but epiphenomenal; in the higher group it was causal—e.g., blushing, weeping, and the dry mouth of fear. There was an increasing involvement of consciousness in the higher reflexes. The way in which emotions were distributed over the body suggested that the psychic states were real causes. "Meaning" was a purely psychic state with no cerebral locus, but was a potent cause. The realm of the subconscious was also causal; this was the philosophical interest in Freudism. A new term was needed for the man as a whole, the mind-body symbiosis.

DISCUSSION.

Dr. **D. McKie** emphasised van Helmont's great position in the growth of physics and chemistry. The word "gas" had been coined by him for wild bodies that could not be kept in vessels and could not be condensed into visible bodies, and he had regarded gases as different from ordinary air. If his terms and definitions had been adopted earlier there would have been less confusion in the time of Black.

Dr. **Parkes Weber** asked when and where "compensatory vital reactions" had first been discovered, and whether the term was liable to be misunderstood as implying some doctrine of vitalism.

Dr. **A. Cawadias** thought there was a great confusion over the word "vitalism." Modern vitalism was not a philosophical conception, but a biological law—the noumenon lying behind the fiction of phenomena. The physician was forced to admit that in every living being there was a purpose, and this admission was founded on observation. The will to live was a law; and physical and chemical laws could never explain the direction of functions. The hesitations experienced in approaching this vitalistic principle were due to misunderstanding. Vitalism had often been confused with substantial vitalism. The archæus was not a Greek word; it had been coined. It had, however, something to do with Greek philosophy, which had compared the soul with the sculptor who modelled the clay.

Prof. **Millais Culpin** said that because vitalism had been feared and treated as a heresy, medicine had been driven into an untenable position in the face of modern psychology and psychopathology, with disastrous clinical results. Modern conception of neurosis went right back to the time of van Helmont and Haller. Owing to the fear of vitalism an enormous amount of effort had been wasted in research on "D.A.H.," simply because no one dared to say to a soldier: "What are you worrying about?"

SECTION OF THERAPEUTICS AND PHARMACOLOGY.

The opening meeting of the session was held on Oct. 13th, when Dr. **E. P. Poulton**, the new President, delivered an address on

Obesity.

The subject, he said, was still somewhat wrapped in obscurity, and much work remained to be done. The ordinary method of measuring obesity, as used by life assurance offices, was to take the person's height and age, and from the standard tables determine whether he was the right weight. Dr. Poulton questioned the wisdom or value of taking age into consideration. He himself used Ainley Walker's figures, relating stem length and body-weight. Their value was that they admitted some estimate of the degree of normal variation. But the range from his figures was too wide, probably because the length of the limbs was ignored. He considered that Dreyer's method of measurement, which involved the circumference of the chest, was inapplicable. In obese people there was an enormous development of fat round the chest; and people who became too thin were very wasted round the waist line. Possibly more accurate results would be obtained in future by taking the type of individual into account, as described by Pende. Dr. Poulton made a protest against people who wrote on obesity failing to state weight and age, and in fact giving no measurements which would enable the outsider to obtain some idea whether the person was obese.

Various theories had been propounded to explain the fact that the normal body-weight remained constant. Was it true that the amount of food needed to compensate for activity was entirely gauged by the person's appetite, and if the appetite was more voracious at one time would the person steadily grow fatter? It had been argued that if a man were to take a small pat of butter extra every day of his life he would double his weight in ten years. But there were very strong arguments in favour of a luxus consumption. Graefe had shown that in the dog it rose as the fat intake and the body weight increased, and that this rise was stopped when the thyroid was removed.

There was some doubt about the part played by "specific dynamic action"—i.e., the stimulating effect of different foods on the metabolism. It was high for proteins, and not so high for carbohydrate. Was there any difference in obese subjects in these respects? With regard to protein, experiment left the matter doubtful. In some cases of obesity the specific dynamic action of carbohydrate was not depressed. In some subjects there was increased burning of carbohydrate after a meal.

Obesity could be divided into exogenous and endogenous types. In the latter the basal metabolism was low, in the former it was high. But he doubted whether this was a helpful division; he was sure a sharp line of demarcation could not be drawn in that way. There were endogenous cases in which the metabolism was high. Dr. Edwin Warner's theory was as follows: taking a normal person, one with a normal basal metabolism, if that person put on weight by means of fat, and if the metabolism remained proportional to the body surface, though he had increased in weight, it must mean that his body tissues were working harder and were producing more heat than in the ordinary case.

From a study of the basal metabolism of a number of obese subjects it was seen that luxus consumption was mostly present, and this implied that there was an increase of thyroid activity. Hyperthyroidism was not a factor in obesity, and typical myxœdema patients were not very fat. He thought there was a good deal to be said for the idea of hyperinsulinism as a cause of obesity. The frequent occurrence of obesity was, he considered, compatible with a wearing-out of an over-active functional process, just as hyperthyroidism was commonly followed by hypothyroidism. If too much carbohydrate was taken, the production of insulin might thereby be stimulated, with increase of appetite, and so a vicious circle might become established. In early cases the sugar tolerance had been found to be increased. It had been shown that insulin secretion resulted from stimulation of the vagus centre, and this might account for the obesity of so-called hypopituitarism, which was experimentally produced by injury to the hypothalamus.

It had often been found difficult to produce loss of weight in obese subjects. This might be largely due to water taking the place of fat. The administration of carbohydrate, even in small quantities, might be wrong treatment. E. Warner had found a bigger loss of weight in one of the speaker's obese patients on a protein and fat diet than on a high carbohydrate or high protein diet—an observation which seemed to accord with certain physiological experiments. Treatment was very difficult; some workers stressed the fact that a fat person could be given a low diet, one apparently below his basal requirements, and yet he did not lose much weight. Gordon and Stanley suggested treating obese patients on a protein and fat diet, giving them only sugar between meals and when they were doing exercise, so as to stop the symptoms of weakness. Dr. Poulton and a colleague took a starch and cream diet for eight days, and at the end of that period their loss of body-weight was only 0·2 kg.

In conclusion, he said that if obesity was hyperinsulinism and hyperthyroidism mixed, why did not the subjects of it suffer from hypoglycæmic fits and Graves's disease simultaneously? That they did not do so might be because the action of thyroxin and insulin together was not the sum of their separate actions.

DISCUSSION.

Dr. H. GARDINER-HILL expressed his agreement with most of what the President had said, but joined issue with him about the action of the thyroid in obesity. He was sure it was not always a factor, but it might be so. Cretins might be fat, or they might be thin. He was sure people could put on fat after their thyroid had been removed. He felt that a person could get fat independently of the basal metabolism, because in obesity the basal metabolism might be low, or normal, or increased. It was necessary to postulate some other mechanism, and an abnormal feature of obese people was that they had some unusual storage mechanism, a peculiarity which might be inherited, since a number of obese people could be found in one family. It might be acquired as a result of diminished energy expenditure, or excessive food intake, or, on the other hand, it might depend on a disturbance of the ductless glands—i.e., it might be present in thyroid deficiency, in pituitary deficiency, in ovarian deficiency. Of 31 women who had had both ovaries removed, 84 per cent. gained considerably in weight; of 14 who had had one ovary taken away, 80 per cent. gained considerably in weight. His conclusion was that one must look to a ductless gland for a cause, but he did not yet know enough to lead him to favour one in preference to the others.

Dr. EDWIN WARNER thought that Dr. Poulton had made out that fat people differed clinically, and to some extent in metabolism, from the ordinary case of hypothyroidism. He thought it meant that though these people had a large amount of fat in the subcutaneous tissue and in other parts, they were working the active tissues harder than normal in order to get rid of the increased intake of food or to store it. These people absorbed an amount of food which they did not require for ordinary purposes, and in dieting them it was essential to give them an excessive calorie intake. A strict dietary was as important for these obese people as it was for the diabetic. Loss of weight was accelerated by cutting off the salt taken.

Dr. J. H. BURN held there must be a good deal of truth in the idea that obesity would depend on the amount of thyroid activity. The action of the pituitary gland was the opposite of that of insulin.

Dr. W. W. PAYNE said it was reasonable to assume that there must be some relationship between the food carried in the blood—particularly the blood-sugar and the blood-fat—and the storage and the discharge of fat.

After further discussion the PRESIDENT replied.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

General Practitioners and Voluntary Hospitals.

AT the first sessional meeting of this society on Oct. 2nd, the new president, Dr. H. H. MILLS, opened a discussion on the relationship of general practitioners to the voluntary hospitals. After giving a brief historical sketch of mediaeval hospitals, describing in particular the great work of Santa Caterina, of Siena, he turned to the modern developments in hospital administration, in particular the advent of the paying ward. This opened up the question of the payment of the voluntary hospital staff, in favour of which he expressed a decided opinion, and also the position of the general practitioner in relation to the paying wards which received his patients.

Every doctor in every area should, he said, be linked up more or less closely to some hospital. The new status of the municipal hospital was a further factor to be considered in regard to the future of the voluntary institution.

Dr. G. C. ANDERSON (deputy medical secretary, British Medical Association) said that the hospitals were now, through their almoners, making charges of all who could pay, no matter how little. Did it not appear therefore that the conditions under which the medical staff gave their services in the past had materially altered? The patients whom practitioners had attended outside the hospital in the past, in nursing homes or in their own houses, were now going into hospital as a matter of course, with the consequence that members of voluntary hospital staffs in their private practice were "feeling the draught." Quite recently the British Medical Association had issued a questionaire to all the hospitals to discover how far opinion was in favour of some payment to the staff, and the change of opinion in favour of this arrangement which had taken place during the last ten years was very impressive. It had also to be remembered that there were now large municipal hospitals side by side with the voluntary ones. These had power to charge patients, and they had paid staffs. It was unthinkable that there should be two hospitals, both of them properly equipped and staffed, serving the same area, the one with a paid staff and the other with an unpaid. It was not only in the interests of the profession that they should be paid for their services, but in the interests of the public generally that paying or contributory patients should pay for medical services rendered. He also urged that as far as possible the general practitioner, whether insurance or private, should have some hospital facilities.

Dr. RICKARD W. LLOYD pointed out that if the staffs of voluntary hospitals were remunerated they would have to meet a tightening up of regulations which might prove irksome.

Dr. G. C. DEWES said that the teaching hospitals were always ready to do what they could for practitioners; some welcomed them at lectures. But it had to be remembered that the voluntary hospitals were very busy, their resources fully taxed, and that as a rule they had not room to expand. Possibly in future the municipal hospitals would be used for a class of patient which could pay more than those ordinarily received in the voluntary hospitals.

Dr. F. McG. LOUGHNANE said that even when opportunities were offered for the practitioner to follow his case into hospital, it often happened that he took no further notice of his patient, never coming to the operation to which he was invited, nor making inquiries afterwards. Even post-graduate courses were mainly attended by men from overseas, not by local practitioners.

Dr. J. F. HALLS DALLY said that the ideal arrangement had been reached in New York, where a medical centre had been founded at some distance from the centre of the city, where a mass of buildings had been put up catering for every class of the population. He could not advocate the promiscuous introduction of general practitioners into the wards of a general hospital, nor could he conceive how such introduction was good for the patient, for the hospital organisation, or for the practitioner himself.

Dr. H. H. SANGUINETTI said that the position of the practitioner who wanted to follow his patient into the paying wards was somewhat embarrassing, because he could only continue to treat him by consent (so to speak) of the staff. In the nursing home it was very different, for although the consultant was called in, the treatment was left in the hands of the practitioner as far as possible.

Mr. MALCOLM DONALDSON believed that the voluntary hospital had got to go. It would become a State hospital with a paid staff. The danger of a whole-time service, however, was that it stopped initiative. With regard to private wards, he could only speak from experience of those at the Royal Northern Hospital, where a practitioner was allowed to call in any consultant, provided the consultant was on the staff of another London hospital.

Sir ALFRED OXLEY paid a tribute to the work done under municipal auspices in the direction of antenatal care and the treatment of children.

Dr. RONALD CARTER, who spoke from the point of view of the officer of a municipal clinic, said that so far as the hospital question was concerned he had experienced no difficulty. Whenever he had written a letter to a member of the staff of a hospital he had always received a courteous reply, he had been informed of any operation, and he was able to take an interest in the patients throughout their stay in hospital.

Dr. C. ELLINGWORTH described a recent visit to Russia, where he saw an ideal system of hospital administration which had been worked out. In London there was little coördination between the different hospitals in respect to the out-patient departments, but in Leningrad there was an out-patient department attended by as many as 2000 out-patients a day, and nobody was kept waiting, each patient being seen by appointment. These patients had first been seen by their section or area doctor, who, after his hours of private practice, took an active part in the clinic, where he was provided with a laboratory and means of research in the particular branch in which he was interested.

Dr. JULIUS BURNFORD said that the legislature might lay down a Utopian system of State service, such as apparently had been done in Russia, but the accomplishment of such schemes did not always correspond with the desires expressed at their initiation. A detailed system of payment for services, with many rules and regulations, might result in the authorities obtaining duty from their officers, but the patients might not get the full service they now obtained. As to participation by the general practitioner in the voluntary hospital, did he really want to participate?

Dr. ANDERSON, replying, remarked that there were industrial areas in England where 75 or 80 per cent. of the hospital income came in some form of patients' contributions, and there were indications that the class of people who were paying into the contributory schemes would be largely extended. Surely therefore the medical staff must safeguard their own interests. As to the out-patient department, there was no doubt that some change ought to take place; people ought not to be allowed to attend such departments without some sort of recommendation. Many of the cases which did come should be referred back to the insurance or private practitioner, who should undertake the treatment which in many cases he was willing to undertake.

Dr. VAUGHAN PENDRED mentioned instances in which former private patients now took advantage of municipal facilities. He complained that the private practitioner was being wiped out, on the one hand by the increased resort to hospitals, and on the other by the decreasing sickness rate.

REVIEWS AND NOTICES OF BOOKS

Modern Medical Treatment.

By E. BELLINGHAM-SMITH, M.D., F.R.C.P., and ANTHONY FEILING, M.D., F.R.C.P., Physicians, St. George's Hospital. London: Cassell and Co., Ltd. 1931. In 2 vols. Pp. 705. 30s. for 2 vols.

PRACTITIONERS complain with some justification that the problems of diagnosis are divorced from those of treatment. The space devoted to treatment in even the larger text-books of medicine is often woefully small. Dr. Bellingham-Smith and Dr. Feiling have written a book expressly designed to give prominence to treatment, though they have included some account of ætiology, symptoms, and prognosis. It follows that each subject is presented from the aspect of the disease concerned, and not from that of the remedies employed. The first volume includes chapters on diseases of the nervous system, heart, blood-vessels, blood, endocrine glands, respiratory and genito-urinary systems. The second volume deals with diseases of the alimentary tract, the liver and disorders of metabolism, intoxications, infectious diseases, and diseases of joints and muscles. Each volume contains a full index to the whole book, which is a convenience; no ready reference to drugs is, however, available in the index, which is classified solely under diseases and symptoms.

This work should prove a valuable addition to the practitioners' library. The authors have used their wide experience, and have not ignored well-tried remedies for the sake of new and less certain methods. The more recent additions to therapeutics, such as liver treatment in pernicious anæmia, quinidine in heart disease, malarial treatment in general paralysis are included, and even such modern methods as the use of higher carbohydrate diets in diabetes. Throughout their work the authors show good judgment; they write clearly and concisely, and achieve brevity without sacrifice of important detail. Many prescriptions are included, but full weight is given to dietetic, physical, and specific methods, as well as to pharmacological treatment. The section on digestive disorders and of diseases of the nervous system are particularly helpful, and the chapter devoted to the psychoneuroses is welcome. The text is not overloaded with references to original papers, but the authors quote the experience of others where it differs from their own. The reader always tends to expect more help from any work on treatment than he is likely to obtain from the written word, and to say that he will not be disappointed in this book is high praise.

Operative Surgery.

By Dr. MARTIN KIRSCHNER, Professor of Surgery at the University of Tübingen. Translated by I. S. RAVDIN, B.S., M.D., J. William White Professor of Research Surgery, University of Pennsylvania; Surgeon to the University Hospital, Philadelphia. London: T. B. Lippincott and Co. 1931. Pp. 666. 50s.

THOUGH this book deals essentially with the principles of surgery, its appeal will not be solely to the undergraduate student or operating novice. The experienced surgeon will find much of interest in it, not least anent the outlook and ideals of the author. These are eminently sound and well expressed; any qualified doctor contemplating a surgical career would only derive benefit from reading the introductory chapter. Prof. Kirschner deplores the increasing number of surgeons whose work does not conform to the highest standards, either in the skill with which it is carried out or in its conception. He gives a timely warning that though operative procedures have been made comparatively safe, we have not yet complete control of the issue of even the simplest surgical act. Speaking of the necessity for a definite indication for every operation, he says the question should not be that which can be operated upon, but that which must be operated upon. Where doubt exists the surgeon should ask himself "whether he would subject himself or a member of his family to operation for a similar condition and, if so, which procedure he would elect." Prof. Kirschner quotes von Bergmann's dictum: "The purity of surgical science is entrusted to you." No more appropriate inscription could be written over the entrance to every operating room. In this book the ideals set out are uniformly high, and the criticisms offered of certain methods are offered in the light of these ideals. The author says of spinal anæsthesia, for example, that it is probably the most uncertain and dangerous method of anæsthetisation available. The very occasional catastrophe seems to arrive independently of the best technique. No one who has read carefully the literature of this subject, and has any considerable experience in its practice, can deny the essential soundness of this verdict. The various chapters describe the general surgical technique of the operation room, methods of anæsthesia, the control of hæmorrhage and of infection, methods of operating upon skin affections, muscles, tendons, blood-vessels, nerves, bones, and joints. A special chapter is allotted to amputations. The treatment of abdominal affections, the surgery of the thorax, neck, or central nervous system are deliberately excluded, since the book is primarily concerned with fundamental methods. Yet it is as possible to frame wise general principles in connexion with abdominal surgery as in connexion with the surgery of limbs.

The numerous pictures are beautifully drawn, and many of them are coloured. The translation is good, and the style of writing easy and attractive.

Rational Treatment of Varicose Veins and Varicocele.

With notes on the application of the Obliterative Method of Treatment to other Conditions. By W. TURNER WARWICK, M.A., M.B. Cantab., F.R.C.S. Eng., Surgeon to Out-patients and Surgeon in charge of the Rectal Department, Middlesex Hospital; Surgeon to Hertford County Hospital. London: Faber and Faber, Ltd. 1931. Pp. 187. 5s.

WHATEVER may have been the tendency in the past to look upon varicose veins as localised and superficial lesions, and to ignore their relation to the cardiovascular and other systems, it has been avoided in this monograph, which is both thorough and well balanced. The first 93 pages deal with the anatomy and physiology of normal veins and the ætiology of varicose veins, and Mr. Turner Warwick's observations of the valvular mechanism of venous return, which he has reported in THE LANCET (1930, ii., 1278), form a suitable introduction to the rest of the book, which deals with various aspects of treatment. In considering the rival claims of operation and injection he assigns surgery a very small place in the treatment of uncomplicated varicose veins. The risk of embolism following injection is shown to be very slight by the statement that only six such accidents have been reported. The chance of this complication is therefore much less after injection than after operation. The treatment of varicose ulcer, varicose eczema, piles, and varicocele are also dealt with. The operative procedure recommended for this last condition has been described in our columns (1931, i., 517). The book as a whole is a useful study of theory and practice.

Nutrition and Diet in Health and Disease.

Second edition, revised. By JAMES S. MCLESTER, M.D., Professor of Medicine, University of Alabama. London: W. B. Saunders Co., Ltd. 1931. Pp. 891. 36*s*.

Prof. McLester's book on Nutrition and Diet, first published in 1927, was written "from the point of view of the physician whose interests are general." Its aim was to present a practical handbook of dietetics in health, prophylaxis, and treatment, and to include sufficient discussion of the physiological, chemical, and pathological aspects of the subject to make the management of diets intelligent and as far as possible scientific. The balance is well maintained. Concise and up-to-date descriptions of such subjects as metabolism, digestion, and nutritional requirements are supplied, and a section on the pathology of each disease precedes the information on its dietetic treatment. The author naturally assumes in his readers a certain amount of physiological knowledge, but not more than is at the disposal of the average practitioner. Complicated chemical formulæ are avoided, but full references are given for the benefit of those who want further detail.

It is, however, on the practical side that the book makes its greatest appeal. Prof. McLester is not afraid to omit altogether, or dismiss in a few words, old rules which, though they have been proved to be valueless, still find a place in so many text-books. Where diet is of real importance, on the other hand, the smallest details are considered, and alternative menus are constructed for every day in the week. Some of these are not entirely suited to the English patient, who has probably never heard of "noodles" and is unable to obtain corn muffins, but the majority would require very little adjustment. Many recipes for special dishes are supplied, with due reference to the importance of variety, palatability, and cheapness, as well as nutritional value. Where the views of different authorities vary, details of more than one régime are provided. In the presence of such attention to detail it is rather surprising to find no definite instruction for the gastric (or duodenal) ulcer patient after the fourth week of his treatment. Noteworthy sections are those on obesity and on diabetes, and though the diets recommended in acute nephritis may not meet with universal approval, the discussion of dietary treatment of the more chronic forms is admirably thorough. In rheumatism, the author has a healthy scepticism of the value of dietetic "cures." In other conditions in which dietetic indications are somewhat vague (such as febrile illness, tuberculosis) the diets suggested will be found useful, though they are based more on common sense than on scientific knowledge. An excellent section on Infant Feeding is contributed by Prof. McKim Marriott; that on the feeding of surgical patients, by Prof. Barney Brooks, is too brief to be of real value. The final section of the book is devoted to instructions on cooking, special methods of feeding, and tables of metabolism, height and weight, nutritional requirements, and food values.

Altogether a sane, practical, and unbiased survey of the present state of our knowledge of diet and nutrition.

Applied Physiology.

Fourth edition. By SAMSON WRIGHT, M.D., M.R.C.P., Professor of Physiology, Middlesex Hospital Medical School. London: Humphrey Milford, Oxford University Press. 1931. Pp. 552. 18*s*.

THE teachers of the subjects in the earlier part of the medical curriculum are always being reproached for not linking them up with the later clinical studies. Physiologists have been peculiarly vulnerable in this respect, but their attitude to clinical problems is happily becoming less detached. The keen student is anxious to carry his knowledge of physiology to the bedside, and he is nowadays being helped to do so by special classes in applied physiology, and by the publication of text-books designed to this end. Prof. Wright's book serves this purpose admirably, and may be commended not only to the undergraduate, but to the physician.

The book is divided into sections dealing with the different systems of the body, and it is easy to find information on any subject, even without using the very comprehensive index provided. The author draws freely from the latest literature, and has a critical appreciation of the bearing of any new developments on clinical practice. We observe that the theory that intestinal intoxication is responsible for many ills does not receive much support from experimental investigations.

The volume contains much physiology of general as well as of practical interest.

Elementary Chemistry.

By W. LITTLER, B.A., B.Sc., Senior Science Master at Hele's School, Exeter. London: G. Bell and Sons, Ltd. 1931. Pp. 440. 4*s*. 6*d*.

THE spirit in which this book is written is, perhaps, best summarised in the following quotation from the author's preface: "Chemistry is a subject with a great and interesting history; it has an almost infinite number of relationships to the every-day life of civilised peoples; it is a subject in the study of which any boy or girl may take a legitimate pride." The text is written in conversational style, with a free use of the personal pronoun in addressing the reader, and the author has obviously enjoyed unfolding his story. His information is culled from many usually untapped sources, such as the large manufacturers from whom he has obtained permission to reproduce photographs, with the result that the so-called elementary chemistry is brought into close contact with the manufacturing problems of the moment. Even the most difficult theoretical questions are suffused with a living interest, often assisted by the use of simple or homely analogies, and the account given of the more recent views on atomic structure, condensed into some three or four pages, is a triumph of lucidity which will repay reading by advanced students. As the book is intended to cover the whole of the chemistry needed for the usual school certificate or matriculation examination, it contains a liberal supply of examination questions and answers to numerical examples. If it fails to inspire interest in chemistry it will be the reader's fault and not the author's.

THE LANCET.

LONDON: SATURDAY, OCTOBER 17, 1931.

MULTIPLE PERSONALITY.

In his presidential address to the Section of Psychology at the recent meeting of the British Association Dr. C. S. Myers contrasted the everyday changes of personality within the normal self—as shown in business, at play, and in the bosom of one's family—with those abnormal conditions in which personalities exist as alternating selves. Those who heard or read his paper will turn with interest to p. 846 of our present issue, where Dr. R. M. Riggall records a case of multiple personality resembling the classical one described by Morton Prince.

The condition is an extreme example of what psychopathologists call a dissociation of consciousness, and the conception of mind as capable of spatial division, so long as we remember that it is only an "as if" hypothesis, is justified by its convenience in bringing under one description a series of phenomena that is at first sight very heterogeneous. Many complicated acts are carried on by all of us with little awareness of their performance, though our main attention, temporarily turned elsewhere, can be at need directed upon them. The nature of the acts may indicate that elaborate mental processes, involving sensation, perception, and purpose, have been taking place in an independent fashion. There has been a division of attention, and such division is well within the limits of the normal. If, however, one set of mental processes becomes more permanently excluded from that stream of consciousness associated with the self, then we have a pathological dissociation, as exemplified by some hysterical symptoms—anæsthesia, deafness, contractures, and the like—and by the phenomena of automatic writing and water-divining. In these latter examples the conception of a dissociation of consciousness, with a loss of awareness of the dissociated part, enables us to avoid the dilemma of either believing in the miraculous or stigmatising the agent as a wilful cheat. Sometimes one stream of consciousness must be pictured as completely replacing the ordinary one; then we have mediumistic trances, fugues, somnambulisms, and other forms of loss of memory or personal identity; here hypnotism has its uses in bringing the content of the dissociated stream into the field of awareness of the other, thus reintegrating the personality. Last of all come such cases as Dr. Riggall's, in which each dissociated stream takes on the attributes of an individual and a complicated drama is played out by various actors, each actor, however, manifesting one set of tendencies that were originally present in the patient before the dissociation.

Dr. Riggall's paper indicates the relation between the theory of dissociation, due to Pierre Janet, and Freud's theory of the unconscious. The first theory is static; it gives us a pattern to which a particular group of cases conforms, but it offers nothing to the understanding of causes. Freud's theory is dynamic, and Dr. Riggall suggests that if analysis had been possible in his case the mischievous split-off personality would prove to be compounded of what are generally regarded as the deeper contents of the mind, the repressed instinctive side of the patient's self which has crystallised out in a mass and thus found expression. The potentiality of dissociation is, according to Janet, a mark of the hysterical temperament, and, though definite cases of multiple personality are rare, yet the application of the theory enables us to picture many disorders of behaviour not as mere perverseness but as problems to be approached through the study of abnormal psychology.

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THE LARYNGOSCOPE.

In choosing for the theme of his presidential address to the Medical Society of London the history of the laryngoscope, Mr. Herbert Tilley set himself a task parallel to that performed by Dr. R. A. Young, who last year, on the analogous occasion, gave his audience an historical survey of the stethoscope. Mr. Tilley begins the story with the work of the versatile Guy Babington, who, 25 years before Manuel Garcia made public his discovery, had invented an instrument, a mirror on a long shank, with which a certain inspection of the larynx behind the fauces was made possible. The invention was known in the London schools, but the results of its trial seem to have impressed neither Babington nor his immediate followers with any notions for improving it. They did not realise what they had done. Other English surgeons had devised methods for obtaining a view of this region with a mirror on a handle such as was being employed in dentistry—and it was the development of this idea which directly led Garcia to invent the laryngoscope. It is unlikely that Garcia had ever heard of Babington, of Guy's Hospital, or Avery, of Charing Cross Hospital, or of any of the procedures to which Liston, of University College Hospital, referred in his writings; his brilliant idea was original, and he realised what he had done. Garcia had not the same object before him as the medical experimenters, for they were seeking the remedy of pathological conditions, while he was concentrating his attention upon the structure and mechanism of normal tissues. He could not have made his auto-laryngoscopic examination if the parts had been diseased, and he had definite reasons, as a singing master, for ascertaining how those parts worked in health. When by light reflected from a hand-mirror he observed the opening and closing of his glottis, he was giving a substantial demonstration of the advantages to be derived from experiment on the normal subject. To his medical predecessors this view never occurred, and what they were able to see in the pathological subject provoked none of them to pursue their investigations. Thus it was left to Garcia, the layman, to have the inspiration of employing reflected light, and to become the inventor of the laryngoscope.

The development of the laryngoscope, when it became recognised as a most valuable assistant in clinical and operative work, was largely due to Türck, of Vienna, and Czermak, of Budapest, between whom there arose the sadly familiar jealousy on the question of priority. But Mr. Tilley attributes to Czermak the fundamental improvement in technique, by which the reflecting mirror, whether directing illumination from sunlight or any artificial source, could be fastened to the operator in such a way as to free a hand for intralaryngeal manipulations. The stride forward was huge. Both Garcia's hands were occupied in the task of seeing the parts, the little mirror mounted on its handle being held against his uvula, while the other hand was employed in manœuvring the hand-mirror so as to properly direct the reflected light. Czermak held the handle of the reflecting mirror between his own teeth, and thus had an unemployed hand ready for manipulations. Thereafter things moved rapidly, and in this country Morell Mackenzie, who studied under Czermak, became the pioneer. He founded the Throat Hospital in Golden-square in the year 1863, and the special work done there was of such a character that the whole position of laryngology became altered, and the methods of remedy multiplied in proportion to the increased opportunities for diagnosis. Laryngology became recognised as a definite and important surgical specialism, although conservatism among the professional leaders allowed some 30 years to go by before there was any full recognition of the position. But in 1893 Felix Semon and a group of disciples started the Laryngological Society, now a vigorous branch of the Royal Society of Medicine, and from this time forward the laryngologists have been among the most progressive exponents of modern surgery.

In dealing with the stethoscope Dr. Young had to acknowledge that the work in laboratories and the employment of radiology had superseded the instrument in many directions where it had been of the first service to medicine, and in some where its service had been exaggerated ; while he pointed out its persistent value as an aid to careful clinical investigation his address was largely a story of the ancient fame of the stethoscope. Mr. Tilley was in the happier position of having an instrument to deal with that has been since its discovery of steadily increasing utility. The number of lives that have been saved by the laryngoscope, whether in the establishment of diagnosis or in the course of operations, is enormous, and it well deserves the detailed record that Mr. Tilley gives it.

FOOT-AND-MOUTH DISEASE.

After Loeffler and Frosch, in 1898, had established the filtrability of the virus of foot-and-mouth disease and had produced an antiserum, further advance was delayed by the necessity of inoculating one or more large farm animals every time a test was made for the presence of the virus. Waldmann and Pape, in 1920–21, initiated more rapid progress by discovering that the guinea-pig was susceptible if inoculated intradermally on the plantar pad. Since then many strains of foot-and-mouth disease virus have been used for experiments and intensive study has yielded useful information. In the latest report[1] of the Foot-and-Mouth Disease Research Committee, which brings our knowledge up to the middle of this year, evidence is produced which confirms and extends much of the earlier work and emphasises certain new points which have considerably changed the outlook on the disease in this country. In a special refrigerating chamber at the research station of the Ministry the carcasses of cattle slaughtered and dressed by ordinary trade methods have been stored under conditions exactly like those employed in commercial export from meat-producing countries. This experiment has shown that parts of the carcass, notably the bone-marrow, may remain infective for six to ten weeks under such conditions. The cattle used in these experiments were not especially highly infective when slaughtered, and there is reason to suppose from other experiments that this long duration of infectivity of the tissues was not exceptional. Wrapping-cloths soiled with blood were also found to be infective after cold storage for at least 40 days. The liability of such infective materials to set up foot-and-mouth disease in the country receiving them was shown by various experiments—e.g., by feeding crushed bones and other parts of the carcasses to swine, which thereby acquired the disease.

The claim of Beattie and Peden (1924) and Beattie, Peden, and Morcos (1928) that rats are susceptible to foot-and-mouth disease has been confirmed by finding a few infected wild rats in the neighbourhood of infected farm animals. Further, Mr. W. H. Andrews, D.Sc., and his colleagues have repeatedly succeeded in infecting wild and tame rats experimentally by inoculation, by feeding and by contact. The lesions in rats are beautifully illustrated in the report. Besides the more obvious vesicles on the tongue and feet, which are not always present, it seems to be established that small superficial ulcers and scabs on the tail must also be considered specific lesions, since active virus has sometimes been derived from them. The isolated observation of Mr. F. C. Minett, D.Sc., that hedgehogs are susceptible has been extended by Mrs. Y. M. Gibbs and Mr. J. T. Edwards, D.Sc., at the Lister Institute, and it has been shown that in this animal the disease is commonly fatal. No case of foot-and-mouth disease in a wild hedgehog has so far been demonstrated. Mr. I. A. Galloway at the National Institute for Medical Research has shown that cats are susceptible to experimental inoculation—which agrees with independent work by Höve in Germany. He has studied 90 substances of very varied chemical composition in the hope of finding one which would prevent or modify the disease, but without success. A similar series of negative experiments has recently been recorded from Waldmann's laboratory. Mr. Galloway has also shown that the virus survives in milk about as long as it survives in tap water, except that when the milk becomes sour activity is soon destroyed. Virus added to sterilised milk will remain active at 18° C. for 30 to 35 days.

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[1] Ministry of Agriculture and Fisheries. Fourth Progress Report of the Foot-and-Mouth Disease Research Committee. London: H.M. Stationery Office. 1931. Pp. 375. 7s. 6d.

With a view to making a vaccine of greater efficacy than the formalinised virus previously shown to produce immunity in guinea-pigs, other means of destroying its infectivity have been tested, but with neither phenol, heat, ultra-violet rays nor bile could an equally serviceable vaccine be obtained. Mrs. Gibbs has made further observations on the preparation of vaccine with formalin and has studied the duration and quality of the immunity produced by the vaccine in guinea-pigs. Prof. A. Ciuca shows that complement fixation can be carried out with immune serum and concentrated virus, and that the serum produced with each of the three types of virus is quite specific for its own type in this reaction, as was already recognised when such sera were used for the neutralisation of the virus in experimental infection. It is clear that a trivalent or multivalent serum is necessary for practical purposes unless the presence of only one type of virus can be assured at the time and place at which it is needed.

The physical properties of the virus have been further studied, and Prof. H. B. and Dr. M. C. Maitland record its successful cultivation in vitro in the tissues of the embryo guinea-pig, finding that not only surface tissues of the tongue, lips, and plantar pads, but also the hairy skin form a suitable pabulum. Cultivation was carried on for nine months in a single series of 17 cultures; in the final flask the virus could be diluted 10,000 times and still prove infective, the calculated total multiplication reaching the figure of 10^{39} times the original inoculum. Dr. Edwards has investigated the desiderata for culture in another way, examining the best conditions for survival of the virus with special regard to the acid-base and oxidation-reduction states of the artificial media. He has not obtained evidence of multiplication, but records results showing, inter alia, that the optimum pH for survival is not the same when other conditions are varied, and that the pH in the developing vesicles on the guinea-pig's foot is much more acid than has hitherto been regarded as essential for survival. The types of different samples of virus from British and Argentine sources have been examined by Dr. Andrews and his co-workers and they have mostly corresponded to the types previously recorded, but a few aberrant strains have been found.

It may be said that from the practical point of view much knowledge has been gained concerning the means by which the disease may be spread, and this should help to anticipate and discount danger from previously unknown sources of infection in spite of the increased facilities for distribution of the virus by the ever-growing means of transport. From the theoretical aspect it is interesting that the infective agent of foot-and-mouth disease, which is perhaps the smallest of the pathogenic viruses, nevertheless is not very unlike the infective bacteria in its power of resistance to physical and chemical substances and in its relation to the immunity reactions which it elicits.

THE SHORTAGE OF DENTISTS.

SPEAKING from the chair at the annual prize distribution of the Birmingham University Dental School, Mr. Malcolm Knott said that the country would soon be faced with a serious shortage of dentists. If the health of the country were to be properly attended to there must, he said, be a considerable addition to the number of those now entering the dental profession. To make good the loss on the Dentists' Register by death and retirement from practice an annual addition of 625 names was needed; and, as a matter of fact, we were not getting anything like that number. School clinics alone could absorb 500–700 dentists. His anxiety has been shared by the Dental Board for many years. It is a simple arithmetical point with which, as Sir F. D. Acland has said, anyone is bound to be impressed. What number of students should enter our dental schools each year in order to maintain a register of over 14,000 if, before the war, 250 new licentiates a year were needed to maintain a register of about 5000? The arithmetical answer to this rule-of-three sum, he said, is 700. And as the annual entry to the schools is not more than half this figure, two courses of action have been forced upon the Dental Board: (1) to help to rebuild and equip dental schools so as to make them more efficient and less unattractive than they (sometimes) used to be; and (2) to help promising young people, likely to make good dentists, who cannot afford the necessary training. In both directions this policy has been consistently pursued. Only this week we record the fruition of the scheme which gives Newcastle-on-Tyne a new dental hospital and school adjoining the Royal Victoria Infirmary. The scheme of assistance has steadily gone on; bursaries are tenable at any recognised dental school in the British Isles, and the Board's bursars are regarded as comparing favourably with other students in regard to personality, industry, and social standing. The Registrar of the Board has prepared a memorandum which has continuously been brought to the notice of headmasters and others in a position to influence the careers of boys and girls leaving school. In presenting the prizes at Birmingham Prof. C. S. Gibson remarked that the real need was the development of something which would make dentistry more than a mere craft. He would like to see the curriculum of dental schools altered with a view to fostering research work in dentistry; in his own department at Guy's grants had been given towards elucidating the mysteries of metallic alloys for fillings and of the materials used in the making of dentures. The future was bright with promise for the dental student since the range of openings for junior practitioners of dentistry had been greatly augmented.

ANNOTATIONS

ANOTHER YEAR OF RADIUM.

THE second annual report of the Radium Commission deals with the year ended on August 31st, 1931, which has been largely occupied in developing the National Radium Centres, five in Scotland, one in Wales, and eight in England, reckoning the Mount Vernon Hospital and the Radium Institute as one centre combined as a post-graduate school for the whole country. In addition to these it has been provisionally decided to have regional centres in the East Anglian and South Western districts. The total amount of radium ordered, or approved to be ordered, by the Trust now amounts to 24·9 g., of which 21·8 g. have been delivered and about 17 g. distributed to the centres. Owing chiefly to present financial conditions three centres (Mount Vernon, Edinburgh, and Newcastle) have been unable to take up the amount of radium originally asked for, and three other centres (Bristol, Liverpool, Newcastle) are not yet ready with their radon installations. Two courses for post-graduate students have been organised and carried through at the Mount Vernon school and a third course is now being held. On the research side the school has received the support of the Medical Research Council and of the British Empire Cancer Campaign, and the report notes with regret that the work—clinical, teaching, and research—at Mount Vernon itself is seriously hampered by lack of funds. Out of a total of 150 beds only 70 can at present be used. The Radium Institute continues to supply national radon at a flat rate of one shilling per millicurie for the use of non-paying patients, on condition that detailed records are kept of its use.

Mass irradiation has not turned out quite according to plan. In allocating the four-gramme bomb to Westminster Hospital last year it was stipulated that preference should be given to cases of malignant disease in three regions—breast, stomach, and prostate, in the two latter of which at any rate surface therapy had proved inefficacious. These conditions have been loyally observed by the hospital, but the results confirm what has also been the experience abroad, that under present conditions of knowledge this form of radium therapy cannot be recommended for treatment of cancer in these regions. Nor were any better results obtained in the few cases of deep-seated cancer of other organs in which this method was tried. The continued use of the bomb in its present form is regarded as unwarranted. Surface therapy by means of such bombs is only very partially explored, and the Commission, in conjunction with King Edward's Hospital Fund for London, is considering future policy.

The loan of radium by the Commission is most carefully safeguarded, but in a few cases it seems small quantities of radium have been lost. Far more serious has been the injury to the health of certain individuals handling the radium. Two causes may have contributed to this unfortunate result. On the one hand the keenness on his work of a radium officer may lead him to neglect some precaution designed for his own safety, and he may not become aware of the injury before it is well established. It is the view of the Commission that for the protection of the personnel the reports of the periodic blood counts made at regular intervals (at least twice a year) should be submitted to one of the physicians of the hospital concerned, appointed to have medical charge of the radium staff. On the other hand radium officers are expensive, and sometimes unforeseen, additions to the staff. They require exceptional periods of rest, which means that they must have substitutes capable of carrying on their work. Since this is not always easy to arrange financially or otherwise, the radium officers, being usually young and keen, either minimise the risk to which they are exposed or, knowing the financial difficulties, hesitate to make representations on their own behalf. The Commission has good reason to believe that routine work with radium should involve no real risk to operators, provided that the accepted precautions are strictly observed by all concerned, including the hospital boards.

This whole question of radium officers, so vital to the efficient working of the centres, presents great difficulties in the present condition of hospital finance. In some quarters it would seem that the importance and proper functions of a radium officer are imperfectly appreciated, and even when the necessity of such an appointment has been recognised the special training required is apt to be rated unduly low. For example, it has sometimes been thought that any young doctor who has paid a flying visit to the chief radium centres at home or abroad could thereby acquire sufficient knowledge and experience not only to take charge of large quantities of radium but also to advise surgeons with regard to its clinical use. This is described in the report as a large and risky assumption which would not for a moment be endorsed by leading radiologists. It is of vital importance that the national radium should be utilised only under the best conditions, and to this end an otherwise qualified candidate should be trained at a recognised centre, under skilled radiologists, for a period of not less than 12 months.

The forms of clinical record drawn up by the Commission are now being used by all national centres and have also been adopted by other institutions both in this country and elsewhere. The greatest importance is attached to the accurate keeping of these records which should, at the end of five years, provide full and uniform details of a large number of cases upon which definite conclusions may be based. In consultation with Prof. M. Greenwood the Commission has now drawn up statistical summary cards which have been issued to all centres. Each case of malignant disease treated with radium will be summarised on one of these cards which will be returned to the Commission once yearly for the compilation of national statistics. The great need at the present time is reliable information with regard to the value of radium as a method of treatment when practised by those who have the necessary knowledge to use it properly. Time, and a sufficient volume of accurate and uniform records, are essential to the solution of this problem, and (the Commission's last word) a period of five years at least from the inception of the national scheme will be necessary before any confident verdict can be given.

ANTENATAL SCHEME RUN BY PRACTITIONERS.

THE maternity centre for the urban district of Winsford having failed to attract patients, a scheme for antenatal work by the general practitioners of the district was put forward some years ago, and was sanctioned after some delay by the Ministry of Health in time for it to be started at the beginning of 1930.

Under this scheme the sanitary authority pays 10*s.* 6*d.* for the examination of each expectant mother who is not insured under the N.H.I. Acts. For an insured woman no fee is paid, but the doctors in the town agreed to examine and report on both classes. Only a minority of Winsford women are insured, with the result that the doctor's fee works out at about 1*s.* 6*d.* a case. Dr. L. J. Picton, medical officer of health for the urban district, thinks it would be a better arrangement if this fee were paid for each report irrespective of whether its subject was uninsured or insured. During 1930, of the 187 women who were confined, 58 were examined under the scheme; detailed reports of these and of nine babies born in the present year are included in Dr. Picton's annual report to his health committee. The actual work done, he says, was of good quality, and the tabulated statement in the report is evidence that, even under the arduous conditions of general practice, effective antenatal work can be carried out. He reminds his authority of Sir George Newman's opinion that the man who delivers the woman should be the man who makes the antenatal examination. He admits however that difficult problems may arise, and, when a practitioner desires a second opinion, a specialist may be called in at the cost of the authority. So far his help has not been required.

ARTERIAL ENCEPHALOGRAPHY

ARTERIAL encephalography was introduced in 1927 by Prof. Egas Moniz, of Lisbon, as an aid to the localisation of intracranial tumours. A solution that was opaque to X rays, such as sodium iodide solution, was injected into one carotid artery and a radiogram was immediately taken to show the radio-opaque solution in the cerebral arteries. In his first communications Prof. Moniz suggested that displacements or other modifications of cerebral arteries revealed by these arterial encephalograms might be useful for localisation of certain intracranial tumours. He has now published a monograph which provides a concise and thoughtful summary of the symptoms of raised intracranial pressure and the localising signs of intracranial tumours, and describes his experiences with 90 cases.[1] He gives a full account of experiments on animals and cadavers which led to the choice of 25 per cent. solution of chemically pure sodium iodide as the most suitable radio-opaque solution to be injected into the cerebral circulation, and a frank description of the accidents attending the first injections in human beings. The test consists in the injection of not more than 10 c.cm. of sodium iodide solution into the common carotid artery, previously exposed by dissection under local anæsthesia. A radiogram is immediately taken, and the test is repeated on the other side. It should not be performed when cerebral arterio-sclerosis is suspected; death occurred in two of Prof. Moniz's arterio-sclerotic patients shortly after arterial encephalography. He has found that the carotid arteries are often dilated or show plaques of atheroma when there is cerebral arterio-sclerosis, and he therefore stresses the importance of palpation of the carotid arteries as part of the clinical examination. In other cases, Prof. Moniz states, arterial encephalography can always be performed with safety, though it appears that the injection of sodium iodide is not infrequently followed by temporary loss of consciousness and clonic movements of the limbs which are confined to, or most pronounced on, the side of injection. According to the author these fits are without consequence and their incidence has been considerably reduced by preliminary doses of grs. 5 of luminal. Numerous illustrations show that it is possible to obtain good X ray pictures of the internal carotid, anterior and middle cerebral arteries, and their main branches by this test, and Dr. Moniz has evidently acquired considerable skill in identifying the different vessels in X ray pictures. He claims that he can localise most tumours either from the displacement or obliteration of particular cerebral arteries, or, when the tumour is vascular, from aggregation of the opaque solution within the tumour itself. Of the cases reported in which this test was carried out not a few could have been localised by ordinary clinical and radiographic methods; and the results of subsequent operations in his series do not help to establish the author's claim that the test should supersede ventriculography, though in fairness it must be stated that the high operative mortality may not necessarily be associated with previous arterial injections. In some cases considerable symptomatic improvement has followed carotid injections of sodium iodide, and it is stated that certain cases of serous meningitis may be cured by this method. From his experiences with cerebral arteriography, Prof. Moniz describes physiological and anatomical observations which should be studied by all who are interested in the cerebral circulation. Injection of the carotid arteries, especially the common carotid, produces immediate slowing of the pulse and dyspnœa, phenomena similar to those described by Hering as following external pressure over the bifurcation of the carotid artery. If the fluid runs into the external carotid artery and its branches there is rapid salivation and expectoration which the author regards as reflex. Considerable new light is thrown on the formation of the intracranial arterial tree and accurate knowledge of the position of cerebral arteries and convolutions in relation to the skull has also been obtained.

It is doubtful whether cerebral arteriography will ever supplant ventriculography in the localisation of obscure intracranial tumours, though it may be of use in accurate diagnosis of aneurysms and certain angiomas. However, it is providing many interesting notions about the cerebral circulation of man and its possibilities as an avenue for therapeutics should not be lost sight of in the future. In considering the dangers it should be noted that sodium iodide is not the only opaque medium available. Satisfactory results are reported with iodised oils.[2]

ROBERT KNOX ON THE STAGE.

ALTHOUGH "The Anatomist," which is now being played at the new Westminster Theatre, expressly lays no claim to historical accuracy, it does give a lively and not unconvincing portrait of one of the more remarkable figures in medicine. Robert Knox was born in Edinburgh in 1791, graduated in 1814, and almost at once went out to a military hospital in Brussels, where he tended the wounded from Waterloo. Gazetted to the 72nd Highlanders, he sailed with his regiment to the Cape in 1817, where he rode an Arabian mare for 90 miles at a time without apparent fatigue. He took a year's study-leave on the Continent in 1821, enjoying the friendship of Cuvier and other savants in Paris, and in 1822 was placed on half-pay at his own request. John Barclay had recognised in Knox a worthy disciple, and in 1825, the year before he died, offered him a partnership, when he began to lecture on anatomy with a success that was astounding, for so popular were his demonstrations that two-thirds of the medical school came to them. It was this very success that led to his undoing, for he constantly needed anatomical material which was then hard to come by, and this need led to his association with the infamous Burke and Hare. Just over a century ago Burke was hanged, his body being handed over to the anatomical theatre which he had supplied, and public odium fell on Knox, who would seem to have made no inquiry as to the origin of the bodies which arrived so opportunely and at such short intervals. Mr. James Bridie's play tells the story of the murder of Mary Paterson, which was one of the charges in the indictment against Burke, but fell to the ground owing to lack of evidence. The horror of the scene in the Three Tuns Tavern when she fell to the "sack-em-up" men is mitigated in the play by the tenderness of her relations with the drunken demonstrator of anatomy, who is thereafter haunted by the memory of her charm. The acting is on a plane of tragedy which is relieved by lighter touches without sinking into melodrama. Henry Ainley makes of Knox a wayward and capricious hero with a touch of real nobility. The play is a piece of medical history which will interest members of the profession.

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[1] Diagnostic des tumeurs cérébrales et épreuve de l'encéphalographie artérielle. By Egas Moniz, Professeur de Neurologie à la Faculté de Médecine de Lisbonne. Paris: Masson et Cie. 1931. Pp. 512. Fr.100.

[2] THE LANCET, 1931, i., 219.

INSTITUTE OF MEDICAL PSYCHOLOGY.

THE Tavistock Square Clinic, now in its twelfth year of work, has long been faced by the necessity for expansion and consequent removal from its original premises. The proposal to change its name to The Institute of Medical Psychology has recently been carried into effect, and the Board of Trade has sanctioned the legal alteration in title. Financial considerations have so far made the acquisition of larger premises impossible, but it is hoped that this step may be taken before long. The Clinic has, for the last five months, been obliged to keep its waiting-list closed, because of the number of patients awaiting treatment. It will, however, be reopened very shortly.

FACTORY HYGIENE IN 1930.

THE chief inspector of factories and workshops tells, in his report,[1] of grave trade depression. Luxury industries such as motor-cars, wireless, gramophones, tobacco, and chocolates, suffered least; while in those which are hardest hit modern plant is being installed, and reconstruction work carried out with labour-saving appliances to meet the call when trade improves. Factories increased in number from 152,453 in 1929 to 154,102, in 1930, workshops decreased from 108,323 to 103,371—indicating the tendency for the large establishments to absorb the smaller. Industries of many kinds continue to develop in greater London. The campaign against industrial accidents, by tackling the personal factor, has been vigorously pursued, with satisfactory reductions in both frequency and severity in heavy trades such as blast furnaces, and iron and steel works; much remains to be done however before the full value of safety methods is gathered. Stupidity is hard to control, as when the boiler suit of an engineer, who went inside the fencing of a revolving shafting, became caught on a shaft coupling, and he was taken round and fatally injured. Considerable activity is reported in bringing the silica-dust hazard under control, particularly in the grinding of metals. Fortunately, less injurious substitutes for silica are being found, as in the use of shot to replace silica in sand-blasting operations, whereat several fatal cases of silicosis came under notice. Localised ventilation, designed to meet specific risks with regard to the removal of injurious dust and noxious fumes, is the outstanding feature of modern factory hygiene. Next may be placed improved illumination, with concomitant advantages to output and comfort. The five-day week, with cessation of work on Saturday, but no reduction in weekly hours, is said to be spreading in many trades; it reduces overhead charges, allows opportunity for repairs and cleaning, speeds up output, and improves timekeeping. Instances are quoted of extension of welfare amenities, among which is the provision by certain boiler manufacturers of brackets on the pillars supporting the roof, each of which will support a couple of flower pots; the boilermakers provide and tend the plants and flowers. An *opinion* is expressed that good music is of assistance to work.

Matters of direct medical interest are dealt with by Dr. J. C. Bridge, senior medical inspector, who reports the welcome addition of two inspectors to his staff. Lead poisoning, although a few more cases occurred than in 1929, remains low, suggesting that the hazard is now well understood and under reasonable control. So long however as lead is used in industry cases of poisoning are certain to occur until human beings lose their careless habits. An examination of the cases occurring among house-painters, among whom to-day by far the greatest number of cases occur, reveals that, as compared with 17 years ago the cases are older, pointing to long exposure as the cause, rather than modern conditions. The use of tetrachlorethane for degreasing purposes was found to be creeping in, with the occurrence of toxic symptoms; since equally effective substitutes can be used, this poisonous agent should be prohibited; its capacity for causing fatal toxic jaundice was well demonstrated during the war. A singularly detailed table shows that there is now no tendency for anthrax cases to increase; an excellent pocket-card portraying the development of anthrax pustules from the commencement has been issued and this should be useful both to patients and to doctors. To-day hides and skins claim 24 cases of anthrax out of a total of 43 in all industries. The subject of industrial epithelioma receives considerable attention; 194 cases with 36 deaths, came under observation in the course of the year. Of these, mule-spinning claimed [illegible] with 21 deaths, while tar distilling came second with 41 cases and 1 death. Careful periodic medical examination in tar distilleries helps to account for the low mortality. On account of its association with epithelioma, dermatitis is being closely investigated, and information is given in the report setting out both the causative agents and the occupations in which skin troubles occur. Among the agents alkalis stand first, with sugar second, and oil a close third; among occupations, calico dyers and printers lead, with engineers second. Classification is being carried out of all death certificates upon which a diagnosis of silicosis appears; out of 241 cases, the pottery trade claims 52; sandstone, 49; coal-mining, 39; grinding of metals, 36; gold-miners from abroad, 23; refractories industries, 12; sand blasting, 10; tin-mining, 10; and other industries, 90. Reference is made to the occurrence of asbestosis; there is evidence that removal from exposure to the dust may delay a disabling fibrosis for years, but that exposure to heavy concentrations for a short period of years will result in disabling fibrosis, although, when the hazard is left, the worker may not notice anything amiss with his health. Asbestosis is in fact a product of two factors—concentration of dust in the air breathed, and length of exposure thereto. With whole-hearted coöperation and modern methods of procedure, prevention of this industrial disease seems possible. First-aid equipment is being generally used in factories with understanding and often with enthusiasm; but exceptions occur, as when the manager of a rag-sorting factory said that he only stocked iodine, as there were plenty of rags in the place.

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[1] Annual Report for the Year 1930. H.M. Stationery Office. 1931. Cmd. 3927. 2*s.* 0*d.* post free.

The report closes with a reference to electrical accidents which have scarcely increased in numbers notwithstanding the vast increase in electrical hazards due to a greater supply of current.

CRIME AND RELIGION.

MANY people who do not accept the creeds of the churches nevertheless consider that their function of guardians of morality is a sufficient justification for their existence. For the most part they have been content to leave this as an assumption. W. A. Bonger in his study of "Criminality and Economic Conditions" concluded that the minimum of criminality is shown by the irreligious. M. Parmaleo's retort to this was that the irreligious group includes a larger percentage of people who think for themselves—a fact which implies a higher standard of intelligence and education which is not usually correlated with criminality. This, he says, is not because intelligence and education are in themselves necessarily preventives of crime, but because they are likely to place a person in a position in society where the temptations towards criminal conduct are comparatively small. Such explanation is ingenious but probably unnecessary. Bonger's criminality rates have too fallacious an air about them to be impressive. "When the Devil was ill, the Devil a monk would be," and once the criminal is a prisoner there are obvious advantages, Dr. J. R. Miner points out, in claiming membership of some church and not proclaiming agnosticism too firmly. Dr. Miner himself has endeavoured statistically to measure the influence of the churches on crime.[1] His method of approach is by correlating the percentages of church-members in different areas with the criminality of those areas, using the figures from the 1926 census of religious bodies in each of the United States and the 1923 census of prisoners. His conclusion is that though some slight relationship between number of church-members and commitment ratios suggests itself, there is little evidence in these data that the churches play any large part in the prevention of crime. His study leaves the reader still with the feeling of indefiniteness as to what "church-membership" actually implies. Many people at a census, one can believe, would return themselves as belonging to some denomination, and hesitate to proclaim themselves "irreligious." Their membership may be merely in name and in nothing else. In the late war every British combatant, no matter how unorthodox his views, had a religion ascribed upon his identification disc, but it is too much to hope that this "church-membership" was negatively correlated with the war-time cult of wangling. In fact church membership in this case meant nothing. Another flaw in the statistics from the United States that naturally suggests itself is the possibility of inter-State variations in commitments for crime, and it is hard to say how far Dr. Miner has accurately allowed for this.

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[1] Human Biology, September, 1931.

GLANDULAR FEVER.

AFTER the period of oblivion and discredit that followed its first description by Pfeiffer, glandular fever has at length attained recognition as a definite clinical entity. This has been due in part to the steady growth of clinical records of the disease, which has resulted in a better understanding of what are and what are not the essential features, but chiefly to observations on the specific blood changes which form the most characteristic single symptom. It is now agreed that the three cardinal symptoms are generalised enlargement of the lymph glands, fever, and the specific lymphocytosis. To these basic signs may be added many minor symptoms and complications whose presence or absence accounts for the variety of the different types of the disease. One of the more lately noticed of these minor symptoms is the occasional presence of a transiently positive Wassermann reaction. Attention was recently directed to this test by M. Radford and J. D. Rolleston[1] and emphasis is again laid upon it by F. Parkes Weber and O. B. Bode[2] who plead for its use in all cases. But while glandular fever has been well served from the side of diagnosis and clinical study this cannot be said of its pathology. It is not unnatural that pathological study of a benign disease should be backward but it is surprising that there are so few descriptions of the histology of lymph glands from cases of glandular fever. Apart from a description of six glands studied by Rohner, Baldridge, and Hansmann in 1925, Dr. C. L. G. Pratt's note in our last issue is the most important contribution to this subject. Those who have studied the histology of glands in this disease will recognise his description of reticulo-endothelial hyperplasia as more typical of the condition than the lymphoid hyperplasia that Rohner, Baldridge, and Hansmann mention. Pratt considers that the histology indicates the possibility of infection by a filtrable virus and points out its resemblance to that seen by J. O. W. Bland[3] in rabbits inoculated with the blood of patients with glandular fever. Bland, at the London Hospital, has now shown, however, that the disease he evokes in rabbits is due to the presence of protozoa of the genus toxoplasma.[4] These protozoa differ from other toxoplasmata in their ability to infect monkeys and to produce in them a disease closely resembling human glandular fever. Bland appears to think that these protozoa may be the cause of the disease in man but admits that confirmatory evidence is required. Apart from this work the only successful attempt to isolate an organism from glandular fever is that of A. G. Nyfeldt[5] whose claims to cultivate from the blood a bacillus that produces a monocytosis in rabbits have not been confirmed although his technique is easily reproducible. Experimental work on glandular fever has been much neglected in spite of the fact that its symptoms, course, and epidemiology point to its being a specific infection. It is possible that if those who have access to cases would now direct their energies to experimental investigation rather than to the multiplication of clinical descriptions we might more quickly come to an understanding of the essential nature of this interesting disease.

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[1] THE LANCET, 1930, ii., 18.
[2] Münch. Med. Woch., Sept. 18th, p. 1598.
[3] THE LANCET, 1930, ii., 521.
[4] Brit. Jour. Exp. Path., 1931, xii., 311.
[5] Compt. rend. Soc. de biol., 1929, ci., 590.

VAN HELMONT.

THE personality of Johann Baptist van Helmont has had a singular attraction for biographers. Forty years after his death Knorr v. Rosenroth took the trouble to translate his works from limping Latin into vivid mediaeval German. In 1840 G. A. Spiess set out again in the German of his time a complete guide to Helmont's system and its relation to other systems, new or old. In 1868 W. Rommelaere published in French some of Helmont's less known writings, and discussed his influence on the science and practice of medicine. Last year Walter Pagel made a new attempt[1] at interpretation, using Helmont's criticism of the old teaching of catarrh as a basis for what he calls "a mirror of typical baroque culture." The English reader may find Herr Pagel as difficult to follow as the pupil found his master, but even a cursory glance at his book will reveal something of the tremendous influence which Helmont's inductive mind exerted on the scattered and empirical thought of his time, and will show why Pagel puts as his prefatory motto Henle's line "The day of the last hypothesis would be also the day of the last observation." Curiously enough the present revival and interest in baroque art in this country coincides with a fresh interest in van Helmont. Dr. Moon chose him as the object of a presidential address reported briefly on another page (p. 853). By some claimed as a mystic, by others he is remembered as the father of exact quantitative chemistry. A deeply religious man, he took up medicine, as he believed, on the advice of the Archangel Raphael, became dissatisfied with its followers, but was drawn back again by anxiety to relieve the miserable victims of plague seen at Antwerp. He taught that wisdom was the gift of God, only to be obtained by prayer and self-effacement, yet he was imprisoned by the Inquisition in 1644 as subversive of the faith. He held by the efficacy of the sympathetic ointment of Paracelsus—applied to the weapon, not to the wound—and for this has been ridiculed by moderns; yet which of us now, wounded by a bayonet, would not rather have his wound kept clean and cool, as by the then instructions, leaving the boiling oil, the vulnerary of those days, and other horrid applications to be lavished on the steel. Much was hidden from him; science was hardly born. For five years he grew in 200 lb. of earth a 5 lb. tree, adding nothing to it but water, and noting that while the tree came to weigh 200 lb. the weight of the earth was unchanged. The observation was sound and good, although he was wrong in concluding that the increase came from the water. But he prepared carbonic acid gas from chalk and acetic acid, and knew that it occurred during combustion and in the stomach. He proved the explosive effect of gunpowder to be due to sudden gas formation. He introduced the balance into chemistry, and showed that iron, introduced into a solution of copper sulphate, was not turned into copper but merely replaced it. He came wonderfully near the truth when he said that digestion is a kind of fermentation like brewing. He believed magnetism spread within the body, and might perhaps be recognised outside it in future years. He thought reason and belief had each its own sphere; and it is only now beginning to be recognised how greatly he helped to advance medicine by his imagination.

Portrait of van Helmont from the title page of "Auffgang der Arzneykunst" (Sulzbach, 1683), reproduced in Walter Pagel's book.

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[1] Jo. Bapt. van Helmont: Einführung in die philosophische Medizin des Barock. Berlin: Julius Springer. Pp. 223. R.M.16.80.

MEDICAL CANDIDATES FOR PARLIAMENT.

TO-DAY (Friday) is nomination day of candidates seeking election to Parliament on Oct. 27th. Of last session's 18 medical commoners the only woman, Dr. Ethel Bentham, died during the session. So far we have definite assurance that the following are again standing. Dr. J. Hunter offers himself as National Liberal for Dumfries, and Dr. J. H. Morris-Jones for Denbigh, where in each case a Conservative candidate has retired in their favour. Sir Ernest Graham-Little as before is Independent for London University, with authority from his nominating association to give support to a National Government. Mr. Somerville Hastings will be nominated at Reading, Dr. Alfred Salter at West Bermondsey, and Dr. J. H. Williams at Llanelly—all in the Labour interest. Prof. Thomas Sinclair for Queen's University, Belfast, declares himself in support of the National Cabinet. Next week we hope to give a complete list of medical candidates.

Dr. Robert Hutchison will deliver the Harveian Oration at the Royal College of Physicians of London at 4 P.M. on Monday next, Oct. 19th.

Dr. Arthur Rotherham, now a senior commissioner of the Board of Control, has been appointed one of the Lord Chancellor's visitors in lunacy, in place of Sir Robert Armstrong-Jones, who has retired.

Sir John Hawtrey Benson, who died in Dublin on Oct. 9th at the age of 88 years, was president of the Royal College of Physicians of Ireland in the bicentenary year of its School of Physic. He was consulting physician to the City of Dublin Hospital, and had held for many years the post of medical adviser in Ireland to the Colonial Office.

PANEL AND CONTRACT PRACTICE

SICKNESS CLAIMS.

ANOTHER REPLY TO MEMO. 329 I.C.

EVERYONE has been considering the memorandum on certification of incapacity for work issued by the Ministry of Health in June last. The result has chiefly been in the form of muttered grumbling, the memo touches so many sore spots; but there have been several reasoned replies. One of these was noticed in our issue of Sept. 12th (p. 603); another has just been presented to the London Panel Committee by a section presided over by Dr. E. A. Gregg.

INCREASE IN SICKNESS.

Memo. 329 pointed out that the chief increase in sickness claims is in those of short duration, and suggests that the increase is more likely to be due to other causes than incapacitating sickness. If over so long a period (so runs the argument) there had been any corresponding increase of ill-health, there is no apparent reason why it should have manifested itself chiefly in illnesses of short duration, and not to a corresponding extent in cases of serious sickness, causing prolonged incapacity. The section finds it difficult adequately to deal with this pronouncement. That there should have occurred so many illnesses of short duration may be very regrettable from a statistical point of view, but the explanation probably is that in the period in question there actually were a number of such illnesses. Successful simulation of an attack of pharyngitis, influenza, or appendicitis presents certain obvious difficulties. That an increase in the amount of sickness treated by doctors has actually taken place is borne out, the section considers, by the figures of attendances on panel patients, which have risen in recent years from between three and four in a year to between five and six. This is probably because patients are now educated up to getting treatment for illnesses which they would not have troubled about in earlier years. If the steadily increasing number of claims for illnesses of four weeks or less was not due to genuine illness, it should be possible to show that the percentage of claims disallowed by the examining officers was also steadily increasing. The memo itself shows the percentage of claims allowed between 1922 and 1927 to have been practically constant. It would seem likely, if the insurance scheme is to succeed as a form of preventive medicine, that there will be found some increase in the numbers of persons claiming benefit in the words of the memo "most marked at the younger ages and in claims of short duration." Time will show whether as a result of these short claims there may not be found later a decrease in the number of claims of long duration in older patients, although sufficient time has not yet elapsed for this to be apparent in the data available. The results most to be desired from the operation of an ideal system are precisely those in which illnesses of considerable duration would, as the result of the treatment received, resolve into illnesses of short duration.

THE REAL REASONS.

After having disagreed with many of the findings of the memo the section indicates what it considers to be the real reasons for the increase in claims for sickness and disablement benefit. It is necessary to consider the state of affairs before 1912, when sick benefit was handled by so-called sick-clubs. These clubs were small in size, mostly for men only, women being regarded usually as an uninsurable proposition. It was considered unsportsmanlike and unethical to go "on the club" except for a genuine illness; claims were scrutinised by other members who had an interest in the speedy termination of the sick members' incapacity, knowing that if they fell ill they would have to draw on the same fund. With the coming of the N.H.I. Acts all that has been changed. Approved societies are large, with mixed membership, and little or no mutual interest or brotherly feeling. It is true that insured persons still take an interest in the extent to which others succeed in drawing sick benefit. Not however with any idea of protecting the fund to which they have each contributed, but because in this way they can ascertain the extent to which it is reasonable to expect benefit for themselves from the entirely impersonal and (as far as they know or care) inexhaustible State funds, if and when an illness comes along for which they can obtain a doctor's certificate. And if, because the doctor has been severe or the illness has not, their period of incapacity is shorter than they had expected, they feel that in some vague way they have been deprived of their "rights," and in many cases make a mental note to tell a more convincing tale next time. The section believes that this altered outlook on the part of the public is largely responsible for a tendency to claim benefit.

Many of these claims are genuine, and, where there is an element of doubt, the section calls attention to a general tendency in recent years to take a less severe view of deviations from the normal. There are many spheres of activity other than medicine where decisions which 20 years ago would have been accepted as "legal, just, and proper" would now be stigmatised as "legal certainly but unnecessarily harsh, and showing a lack of real understanding of the difficulties." It would not be fair to expect doctors, who also are members of the community, to be entirely unaffected by the changes of public opinion around them. It must be remembered that many of the population are not in good health. In his Presidential address at the B.M.A. meeting in July, Dr. W. G. Willoughby gave as examples of "the unsatisfactory position to-day of the general health" the vast amount of sickness shown by national health insurance reports and the wholesale rejection of young adults who have tried to enter the Navy, Army, and Air Force Services.[1] It is not suggested that the general health of the population has deteriorated since 1912, but the section thinks there can be no doubt that much more attention is being paid to health than previously. The insured person is encouraged by health propaganda to consult the doctor earlier and more often and is also becoming more aware of his benefits and privileges under the Acts. It seems possible that certification of incapacity has not reached its peak, but that some further increase may be expected as knowledge of the advantages offered by the service becomes still more widely known among insured persons. A further cause is that in recent years economic conditions generally have been such that the insured person has made a point of claiming every legitimate cash payment to which he was entitled.

THE REMEDY.

Regarding the cause of the different percentages claiming in different classes of insured person, the section thinks that the explanation here is the relative attractiveness of the benefits to each class in question, and is satisfied that no real improvement can be looked for until there is some readjustment of the sick benefits payable to the various classes. It is suggested that the fundamental figures on which such readjustment could be based would be those showing the sickness benefit of a class which was influenced in drawing benefit solely by incapacity for work. Such figures could be obtained from those of the sickness benefit of married men between 25 and 45, and the extent to which sickness benefit was drawn by this class of insured person might then be taken as the standard. The section pointedly regrets the absence from the memo of the full statistics which the medical profession must have if it is to assist in the solution of the problem. Given these figures the sickness benefits payable to any class of insured patients could then be adjusted so as to equalise the attractiveness, or actual value, of sickness benefit to each class. This would lessen the claims, not only directly because each claim would be less in amount, but also indirectly as the disposition to claim would be less. In so doing it would be necessary to safeguard the case of the man who returns to work too soon for financial reasons, where he is the only wage-earner in a family.

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[1] THE LANCET, July 25th, p. 172.

THE LESSON FROM FRANCE.

Dr. J. C. G. Dickinson writes: "The account of the new system of health insurance in France, and your leading article upon it (Sept. 26th, pp. 707 and 692), must have been of the greatest interest to all panel practitioners in this country. In England panel practice was begun some 20 years ago by bluffing the poorer general practitioners—a not very propitious start. The logical mind of the French is a strong asset, and it is interesting to note that similar tactics have failed with that great nation. The French doctors have shown that placing the moral and material welfare of the patient first they are irresistible to the onslaughts of any political party. They did not employ the threat of a strike, but simply that of a combined front; solidarity of the profession with the threat of non-coöperation with any political party who opposed their just and necessary claims. They refused to have practice divided into two groups, insurance and private. They made (and rightly) their slogan the *entente directe*, with no lay department intervening between doctor and patient. They insisted moreover that the doctor should first be faced with a patient and then with a fee received from that patient, and a fee to which the patient had himself to contribute a fraction which was not covered by insurance—a most important moral element. Tribute should be rendered also to the regard of French doctors for the inviolable preservation of the secret professional, and, above all, to their insistence on the control of medical matters and discipline by the medical profession. They further insisted that the medical practitioner must have full charge and control of the patient who has sought his advice, while under treatment. French practitioners are free from the keeping of useless files of record cards. What corresponds to the regional medical officer in France is chiefly concerned in dealing with patients, and not, as in England, in dealing surreptitious raps over the knuckles to panel practitioners.

"Insurance practitioners in England are not likely to be slow in reading the lesson to be learnt from France. If the victory of the doctors in France has been too great, the victory of bureaucracy over the doctors has been too great in England. It is certain that punishment for the so-called 'crimes' of over-prescribing and over-certification will not long be tolerated in England. Surely the Ministry of Health would be wise to offer wide reforms in the terms of service before much more is demanded as a right. The conversion of a great profession into a trade would then cease."

SPECIAL ARTICLES

MEDICINE AND THE LAW.

Hospital Mortuary Supervision: Alleged Negligence.

A CURIOUS action against a hospital was decided in the Shrewsbury County Court a little while ago, the claim being based upon alleged negligence in the supervision of the mortuary arrangements. An infant died in the hospital on Saturday, April 18th, just a month old. The father instructed an undertaker to arrange for the funeral at a certain churchyard on the following Wednesday. The infant's body, wrapped in muslin and with the face exposed, was placed in the mortuary, and on the Monday the undertaker came to measure it. At that moment there was also in the mortuary the stillborn child of other parents, wrapped in cotton-wool with a calico covering stitched at both ends so that no part of the body was exposed. On the covering of the plaintiff's child there was a label bearing the name; on the covering of the stillborn child there was a label containing identification particulars but no name. Later on the Monday a second undertaker came to the mortuary to carry out his contract (made during the week-end) for the removal and burial of the stillborn child. He had been there with the porter on the previous Saturday on business connected with another body and had then been told by the porter about the stillborn child. The second undertaker had thus seen the bodies of the plaintiff's child and of the stillborn child on the Saturday. On the Monday he saw the under-porter who was doing duty in connexion with an operation and who told him to take the keys and go to the mortuary himself. The second undertaker thereupon went to the mortuary and removed and buried a child's body. When the first undertaker arrived on the Wednesday to remove the body of the plaintiff's child for burial, the porter told him that there had been an unfortunate mistake and that the second undertaker had removed the wrong body. Apparently he had taken away the smaller body thinking it must be the stillborn body. In the sequel the plaintiff sued the chairman, vice-chairman, and secretary-superintendent of the hospital as well as the porter. Among other items in his claim was the cost of the Home Secretary's licence for exhumation (£2). In addition to material loss a parent's feelings would naturally be harrowed by the incident. For the purpose of a legal claim, however, since there was no contractual relationship between the parties, the plaintiff must show that the defendants had owed him some legal duty and had failed in that duty.

For the plaintiff it was argued that the defendants owed him the duty of proper custody of his child's body (for the burial of which he was himself legally responsible), and that they had failed therein by reason of their negligence. The county court judge came to the conclusion that the plaintiff had not succeeded in establishing his claim. With regard to the allegation of carelessness in labelling, a point was made against the hospital that the labels seemed to have been attached by an ordinary pin, not by a safety-pin. or by sewing. The judge was satisfied that the proper labels were on the two bodies (*a*) on the Saturday when the porter and second undertaker were in the mortuary, and (*b*) on the Monday when the first undertaker came; he also held that the label appertaining to the plaintiff's child was in the mortuary on the Wednesday when the first undertaker came again. Another suggestion of negligence was the fact that the second undertaker had been allowed to visit the mortuary unattended on the Monday when the mistake occurred. The judge found that it was the practice of the hospital to allow an undertaker to take the key from the office and to enter the mortuary and remove a body unaccompanied if he had previously been to the mortuary with the porter and had had an opportunity of identifying the body with which he was concerned. The judge was satisfied that the second undertaker gave the underporter to understand that he knew what he had to do, the body having been indicated to him on the Saturday. The dismissal of the action shows that the practice of the hospital was not regarded as negligence in law. In the course of his judgment, however, the judge said he thought that the method of custody in the mortuary was capable of improvement and that the liberty given to the undertaker should be controlled. Having regard to the circumstances of the case, he ordered the defendants to pay their own costs. The members of the board of management, he said, did their duty conscientiously and voluntarily; but they were liable in law just as much as individuals if culpable neglect of duty was proved against them. The best system they might devise could not guarantee infallibility; they were expected to use reasonable and proper care in order to reduce the risk of human error to a minimum.

Other hospitals may usefully note the facts and the judge's warning. The unfortunate mistake which occasioned the plaintiff's claim was not the mistake of the hospital staff. The claim failed. But legal proceedings of this nature are something which everyone would wish to avoid.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

THE STUDY OF ANATOMY.

IN his inaugural lecture Prof. J. C. Brash, successor to Prof. Arthur Robinson in the anatomy chair at Edinburgh, dealt with Tradition and Ideals in the Study of Anatomy. He gave full value to the more recent views of anatomical teaching in correlation with biology and physiology. It was being more and more realised, he said, that the analysis of the dead body, fundamental though it is as a means of acquiring the topographical information required for professional work, is not an end in itself, but a preliminary to the synthesis of the living body. In anatomy what one had to aim at was a reasonable basis in methods of instruction. The first thing to be remembered was that an adequate knowledge of the structure of the human body is essential, directly for practice or indirectly for the understanding of other subjects. Secondly, apart from the educative value of getting the true knowledge that comes of understanding rather than mere information, a grasp of principle may be of great value in the mere memorising of details. Anatomy and physiology, however they might diverge in their modern specialisations, were but two aspects of the same knowledge of man's body. It was interpretation, therefore, that gave the soul to anatomy, and since Harvey's time, side by side with continual improvements in description, there had gone on increasing endeavours to expand structure on functional, morphological, developmental, and evolutionary lines. There were those who said they thought anatomy was or ought to be a pure science, sufficient unto itself. The anatomist might, he hoped, be a pure scientist, and as such might be interested in many things, such as the absorbing problems of man's origin, without losing sight of the fact that the justification for his existence was the application of his knowledge to the science and art of medicine.

A TEACHERS' NURSING HOME.

Some years ago, civil servants living in Edinburgh established the East of Scotland Nursing Home, which has been so successful that the clerical services of two large business financial establishments have been admitted to the membership. The Edinburgh branch of the Educational Institute of Scotland, after long consideration, have now succeeded in establishing a similar home. A company, limited by guarantee, and not having a share capital, was incorporated. For a small membership fee and an annual subscription of 15*s*., members of the company and their dependants will, if they need it, have the use of the premises now acquired and the services of a panel of surgeons and medical advisers, on payment of an inclusive fee of three or four guineas per week. Over 1300 members have joined the company from all parts of Scotland—Lewis, Berwick, Caithness, Dumfries—the larger numbers naturally being resident in Fife, The Lothians, and Edinburgh. Premises have been acquired at 34, Royal-terrace, Edinburgh. The constitution is substantially on the same lines as the Civil Service Nursing Home. The Educational Institute is to be congratulated on this new development.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

FRENCH SURGICAL CONGRESS.

ON Oct. 5th the fortieth French Surgical Congress opened in Paris, with Prof. Lambret, of Lille, as its chairman. The first subject of discussion was the post-operative peptic ulcer, which was dealt with by Prof. A. Gosset, who admitted the justification of the complaint made by physicians that the surgeon is too apt to neglect his patient once an operation has been performed. He asked, without evidently expecting a very satisfactory answer to his question, what surgical services provide for the systematic supervision at regular intervals of patients on whom an operation has been performed? The people who have been perfectly well after an operation may be legion, and those with post-operative complications may be rare; but these are the patients who must be weeded out by a comprehensive system of post-operative control. Such a system has been in operation in Gosset's service since 1920. The second subject on the agenda was pneumococcal peritonitis, the discussion of which was opened by Dr. A. Brechot and Dr. Nové-Josserand, whose survey suggested that pneumonia is the commonest source of this kind of infection. Nové-Josserand's statistics showed that among 40 cases of pneumonococcal peritonitis, there were nine *complicated by infections elsewhere*, pneumonia occurring in seven cases, and empyema in two. Opinions are apparently divided about the best course to pursue at the first onset of symptoms; in France, Germany, and the Anglo-Saxon countries many authorities prefer to temporise, but a good number of surgeons favour an immediate operation. The third subject on the agenda was the early treatment of compound fractures of the lower limbs, the opening address being given by Dr. G. Roux and Dr. J. Sénèque.

PROSTITUTION AND VENEREAL DISEASE.

While controversies are raging in various towns in France over the licensed brothels—their maintenance or suppression—it is worth noting that in Paris they are dying out, gradually but quite surely. So that, if and when their official extinction is decreed, it is quite possible that there will be no brothels to extinguish. In the *Siècle Médical* for Sept. 17th, Dr. Léon Bizard has traced the evolution of this slow death of the brothels which, in 1871—when the population of Paris was hardly a third of what it is now—numbered 165. To-day their number has been reduced to 31, of which four are to be found in the suburbs. The *maisons de rendez-vous*—which differ from the licensed brothels or *maisons de tolérance* in little of importance—numbered 281 in 1900. By 1930 this number had fallen to 176. One cause of this slow death of the brothels has been the housing shortage which has prevented the opening of new brothels, the authorities doing their best in the interests of bona fide tenants when flats fall vacant. Dr. Bizard is extremely sceptical as to the benefits that will ensue from the disappearance of the brothel conducted under medical supervision. On this point some significant statistics have been quoted in *La Prophylaxie Antivénérienne* for September by Dr. Deguy, who has recently presented a report on prostitution to the Commission de Médecine Publique du Syndicat des Médecins de la Seine. In Havre in 1930 only 10 per cent. of the prostitutes in the licensed brothels were found to be suffering from venereal disease, whereas this was the case with 68 per cent. of the women arrested for the first time for soliciting in public thoroughfares. Dr. Deguy calculates that there are about 5000 prostitutes in Paris under regular medical supervision, and that there are at least a million men visiting the brothels of Paris every year.

UNITED STATES OF AMERICA.

(FROM AN OCCASIONAL CORRESPONDENT.)

POSTURE.

"DEFINITE information on the prevalence of bad body mechanics, its recognition as a causal factor in disturbances of health, and the methods of satisfactory treatment are needed." Thus the medical service committee of the White House conference last year. It will be observed that they took for granted that poor posture causes ill-health, though they admit with dissatisfaction that "most of this so-called posture work being done in the schools and elsewhere is nothing more than simple callisthenics or gymnastics."

The orthodox American viewpoint on bad posture is set out in a pamphlet published by the Children's Bureau of the U.S. Department of Labour in 1926.[1] "The posture of the average man, because of the force of gravity and the influences of growth and civilisation, becomes drooped or ptotic. With the consequent derangement of the elaborate mechanism maintaining the erect posture of the body comes derangement in position of the viscera, which manifests itself frequently in obscure but distressing ailments of later life." This same official pamphlet describes four grades of posture: excellent, good, poor, and bad. Silhouettes illustrate these postures in stocky-type and thin boys and girls.

Recently the public health service has undertaken a research into the nature of normal physical development and posture. The primary object was to establish a norm from which might be measured the effects of certain occupations. Particular attention was therefore paid to children upon whom occupational stresses are unlikely to have been exerted. A series of reports have been published, of which the latest[2] analyses the data derived from biometric study of 2200 boys and men. An exhaustive statistical study of these data fails to establish any norm of posture. It shows further that any types of posture which may have been used in the past are purely artificial. Posture is exceedingly variable from person to person. Equally great variability was found in the youngest children studied. A rather astonishing discovery is that the depth of the lumbar spinal curve is quite independent of the posture of the individual in any general sense. But the most remarkable conclusion of this study is the absence of any relationship between posture and health. The subjects studied were selected so that no person with any marked deformity, such as a kyphosis due to Pott's disease, was included in the group. Nevertheless, certain physical impairments such as heart disease, hernia, hæmorrhoids, and varicose veins were found present in the group. None of them, except possibly myopia, showed any correlation with the numerous biometric measurements. We are thus in a somewhat ignorant, if scientific, position. There is no longer any ideal posture type, unless it be purely æsthetic, and if postural "defects" (whatever they may be) have any relation to ill-health the relationship remains to be demonstrated. One might add that it must also be shown whether such "defects" are the cause or the result of the sickness to which they are related..

CAUSES OF THE DEPRESSION.

Undoubtedly medical incomes are feeling severely the stress of hard times. Here as elsewhere there is a tendency to blame whatever system is in vogue for the mysterious illness which assails our finance. While England is being converted to the tariff system, American economists are blaming the recent Hawley Smart tariff law for much of the present unemployment. The London correspondent of the *Journal of the American Medical Association* writes (Sept. 19th): "the practice of socialism in general has brought the national finances to such a state that," &c. An economist writing about the same time on the same subject in *Medical Economics*, an American monthly, remarks: "We have been brought to understand that capitalism needs urgent attention. It has permitted grain to rot in one part of the world while in other places stomachs are empty."

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[1] Klein, Armin: Posture Clinics; Organization and Exercises. Washington. 1926.

[2] Schwartz, L., Britton, Rollo H., and Thompson, Lewis R.: Studies in Physical Development and Posture. IV. Postural Relations as Noted in Twenty-two Hundred Boys and Men. Washington. 1931. Pp. 54. 20 cents.

POST-GRADUATE LECTURES

We continue this week the publication of summaries or parts of lectures delivered at the autumn post-graduate courses at London teaching hospitals. Those printed below were given at Charing Cross (Dr. Young), St. Mary's (Dr. Hunt and Dr. Wilson), and Westminster (Dr. Lloyd).

SOME POINTS IN THE TREATMENT OF PNEUMONIA.

(Dr. F. H. Young.)

These are a few points in the treatment of pneumonia which may be useful. In the first place, the *type of bed* is important. If it is more than three feet wide the nursing of the case becomes increasingly difficult in proportion to the width of the bed. If possible the patient should be put into a single bed early in the illness; the word "pneumonia" is usually sufficient to secure for you the anxious coöperation of the relatives in any such proposals. The *temperature* of the room is usually too high, and few people keep a thermometer in the house; if one gives instructions to keep a room at 60° F. it will usually be kept at 70° to make sure. *Ventilation* is usually insufficient; the curtains are often drawn, and a sepulchral gloom is achieved, perhaps with a view to preparing the patient for his future lot. A cheerful atmosphere is essential, though this does not for a moment imply that well-meaning friends should be allowed to "cheer him up." If pneumonia is associated with much bronchitis, however, care must be taken to maintain an equable temperature, especially at night. I am convinced that if ventilation is defective the patient does not eliminate his toxins well.

As to *clothing*, tight vests should be avoided; garments should be light and easily removed. A pyjama jacket can be slit up the inner seams of the arms and across the chest at the level of the manubrium sterni and secured with tapes; when necessary the whole thing can be flung back without disturbance to the patient; pyjama trousers can also be treated by slitting along the inner seams, and easy removal of garments facilitates sponging. There are usually too many bedclothes. A blanket and an eiderdown are as much as the patient feels capable of lifting, and additional warmth can be supplied with hot-water bottles. He should be allowed to choose what position he will adopt, but older patients usually feel more comfortable when half sitting up.

Visiting.—It is wise to lay down definite instructions as to which of his friends and relations shall visit him, and how often; such instructions should be given in writing to the nurse, who is then in a position to insist on their observance.

Diet.—A pneumonia patient is generally overfed; after all, he is going to die or recover in eight days, and during that time he will be worse with too much food than too little. He should be given plenty of fluids to help in the elimination of toxins, but milk, unless diluted, should be given sparingly. For other food he may take what usually agrees with him and what he likes, but not too much of it.

Routine *sponging* every four hours, unless he is asleep, I believe to be valuable; tepid water should be used unless the temperature is very high, when it is as well to use cold water to finish off.

Drugs.—The use of alcohol depends on the opinion of the doctor. Digitalis should be given early if at all, and diuretics such as potassium citrate and liquor ammonium acetate do no harm, and are probably useful in helping to eliminate toxins; let me emphasise again the importance of giving plenty of fluids as well. I do not believe that expectorants have any value in pneumonia.

Oxygen is valuable if adequately given, and for this purpose a funnel is useless. A nasal catheter introduced with a lubricant ointment of 2 per cent. novocain and secured by a Bourne's nasal catheter holder is usually well tolerated by the patient. Like digitalis, it should be given early, and the relatives must be reassured, as they are apt to regard oxygen as the precursor of the hearse.

Turning to *serum treatment*, I believe that Felton's mixed types 1 and 2 serum has proved its worth in pneumonia of the type occurring in epidemics. Two or three doses of 20 c.cm. should be given intravenously on successive days. A disadvantage lies in its extreme expense, three doses costing approximately £10. Sporadic cases of pneumonia occurring in the summer are usually of type 3 or 4, and for these the serum is useless. The value of vaccines is not yet decided. I have used Parke Davis's immunogen (mixed pneumococcal) for four years in doses of 0·5 c.cm. on the first day, and 1 c.cm. on following days; I think my results have been better, on the whole, and there have been no ill-effects.

Bleeding is often helpful for lusty adults in the early stages. *Sleep* is essential to the pneumonia patient; chloral grs. x and potassium bromide grs. xx are usually successful in procuring sleep, and if these fail paraldehyde may be given by rectum. Morphia may be necessary if other measures are inadequate, and if it must be given, it should be given in an effective dose: danger lies in repeated doses. Morphia in pneumonia should be used like a revolver—not until it is necessary, and then properly and not too often. Antiphlogistine is preferable to a poultice. Leeches are valuable where pain is severe, or relief may be obtained by injecting about 100 c.cm. of air into the pleural cavity with the usual pneumothorax apparatus. Diathermy is also effective in relieving pain, and morphia must be given if relief cannot be obtained in any other way. Distension is usually due to overfeeding; the passage of a rectal tube may give immediate relief.

Hyperpyrexia should be treated by adequate sponging, and not by antipyretics. In some cases the vasomotor system appears to be poisoned before the heart muscle. Improvement may follow the injection of 5 per cent. glucose in 250 c.cm. of saline into the rectum. Where delirium is very severe hyoscine will control it, but its use is not desirable if it can possibly be avoided. The routine treatment is usually sufficient to prevent delirium becoming excessive.

It is important to decide early where one intends to treat the patient, and to abide by this decision once made. The patient should never be moved on or after the third or fourth day unless circumstances make it imperative. If his resistance is likely to be poor, one should use stimulating methods early. The tendency in the past has been to "wait and see" in pneumonia, but it is better to map out a plan of campaign at the start and to follow it.

FLATULENCE AND SPASM OF THE COLON.

(Dr. T. C. Hunt.)

Intestinal gas, unlike gas in the stomach, is almost entirely produced within the bowels themselves. It is mainly fermentative and formed in the colon, but may also be caused by protein decomposition and putrefaction in the gut. Large amounts of gas are normally formed in the intestines—a point worth telling to some hypochondriacal patients—and most of it is absorbed. This gas is an active physiological stimulus to peristalsis, and with normal production, reabsorption, and evacuation is a healthy phenomenon.

Excess of gas is usually caused by too much carbohydrate residue in the colon, and is especially common with the so-called roughage diet as sometimes advised for the treatment of constipation. Abnormal fermentative processes in the large bowel may lead to considerable distension, flatulence, and discomfort. When it is realised that 1 oz. of cellulose, if entirely fermented in the gut, will produce approximately 10 litres of gas, the importance of these processes will be realised.

In such cases the gas is generally odourless or nearly so, whereas foul gas points to protein decomposition, often associated with actual colitis and diarrhœa. It is possible that the absorption of such gases is partly productive of the symptoms of lassitude, headache, and insomnia that we associate with intestinal intoxication. It is at least certain that methane is excreted again in the breath after absorption from the bowel, and the *foul breath* of protein decomposition in the colon is certainly no mere fiction. Such gases are more usually formed with diarrhœa and colitis than in simple constipation, and may, I think, be increased by irritation from drastic purgatives which produce a temporary inflammation of the mucous membrane, and irregular hurried churning and peristaltic movements.

Excessive gas production and irritation is often accompanied by *colon spasm.* Any existing irritative focus such as a chronic appendix is apt to favour the same condition.

The attacks may occur most markedly in the sigmoid, in the splenic flexure, in the hepatic flexure, or in the cæcum, resembling respectively diverticulitis, angina pectoris or pleurisy, gall-stone colic, and appendicitis. Gas in the splenic flexure is indeed a most important cause, with gastric distension, of pain around the heart, palpitations, and dyspnœa. This causes the well-known gastro-cardiac syndrome or, as it is better put, the gastro-colic-cardiac syndrome. The attack is very apt to come on when lying down, and may be quite sudden. The diaphragm may be pressed upon and actually develop some degree of spasm, so that the breathing is short, rapid, and even painful. The pressure upon the heart causes extrasystoles and alterations in rate. The distinction from pleurisy, intercostal neuralgia, or true angina pectoris may not be easy, but two points in particular are of assistance: (1) the attack is eased by pressure (as the patient generally discovers), and by the passage of flatus; and (2) it is eased by change of position, massage, and movement.

Treatment is chiefly directed towards improvement in the abdominal circulation by exercise and massage, diet, and relief of constipation without irritant purgatives. Gradually increasing walking, golf, swimming, riding, &c., should be ordered if possible, but when this is inadvisable abdominal exercises may be useful, with massage to the colon. Deep-breathing exercises are valuable, since the diaphragm movements not only provide a form of massage to the colon but also tend to improve the portal circulation.

The *diet* should be of the non-residue type, in which hard indigestible irritant substances, such as fruit pips, skins, raisins, and cellulose foods such as oatmeal, coarse vegetables, beans, peas, are excluded.

Of *drugs*, belladonna and hyoscyamus are most useful, and non-irritant laxatives when constipation is intractable. It must be remembered that a non-residue diet tends to reduce the frequency of defæcation, and that the dangers of moderate constipation are grossly exaggerated, especially in the minds of most patients.

I find that in St. Mary's Hospital about 300 gallons of liquid paraffin are used every year, which should testify to its value. Liquid paraffin does little, however, to soften hard scybala, and is apt to leak through the anus when given alone; it also tends to coat food particles with a thin layer of oil, and probably in this way interferes more or less with the normal digestive processes. Senna and cascara are definitely irritant for prolonged use, and should be abandoned if possible. Simple saline enemata occasionally and glycerin suppositories may be sufficient to overcome the constipation if the patient is given sufficient reassurance and encouragement to persevere with a daily habit of defæcation even if without result. An occasional pill of colocynth and hyoscyamus (grs. iii. to v.) with ext. belladonnæ (gr. ¼) is useful at the beginning of treatment. Kaolin and kaolinol I have found disappointing in the treatment of flatulence and irritable colon.

A dose of *lactose* (½ to 1 oz.) in the morning in a large cup of weak tea is a useful laxative; it is a non-fermentable sugar, and seems to act alone almost as well as when given with one of the *B. acidophilus* or *bulgaricus* preparations to change the reaction and the bacterial flora of the intestine.

The *biliary circulation* is, I am sure, a further important thing that sometimes requires treatment. Some three pints of bile are normally put out into the small intestine every day and reabsorbed, and it is easy to imagine some constipation developing when such a large fluid exchange is altered. Certainly bile salts and alkalis are worth a trial in treatment. The former cause a much increased biliary flow, and are mildly laxative. Bile salts may be given in 5-grain capsules of the B.P. sod. glycocholate, or in proprietary preparations.

DIFFERENTIAL DIAGNOSIS OF ACUTE PULMONARY DISORDERS.

(Dr. W. Ernest Lloyd.)

Acute bronchitis, which is the commonest of the acute pulmonary disorders, usually follows on a catarrhal infection of the upper respiratory tract. The onset is characterised by moderate fever, dyspnœa, and a distressing cough, associated with pain under the sternum due to the accompanying tracheitis. The sputum at first is mucoid, and later becomes more copious and purulent. The diagnosis is confirmed by the presence of sibili and rhonchi scattered throughout both lungs, although the bases are more commonly affected. If the smallest of the bronchial tubes are inflamed, the symptoms become more severe and capillary bronchitis simulates bronchopneumonia.

Lobar pneumonia begins as a pneumococcal septicæmia, and this fact explains the acute onset with high temperature, rigor, rapid pulse and respirations.

A characteristic feature of the onset is the change in the pulse respiration ratio from the normal 4 : 1 to 3 : 1 or even 2·5 : 1. Such an acute onset is enough ground for a tentative diagnosis of pneumonia. Although the patient may complain of severe pain on one side of the chest, during the first few days the signs in the lungs are indefinite. Later the cough is accompanied by the typical viscid, rusty sputum, and the physical signs of consolidation develop. In children the clinical features of lobar pneumonia may be atypical. The pain of a basal pneumonia may be referred to the abdomen, and the condition may simulate acute appendicitis. In such cases the characteristic alteration in the pulse respiration ratio is a most important indication that the condition is primarily pulmonary and not abdominal. Apical pneumonia may simulate closely meningitis, and the diagnosis may be in doubt for some days until the signs in the chest become more definite.

Broncho-pneumonia differs from lobar pneumonia in its less sudden onset, and usually develops secondarily to an attack of acute bronchitis or as a complication of some debilitating illness. Streptococcal or influenzal broncho-pneumonia begins suddenly with marked signs of toxæmia, and the condition resembles the onset of lobar pneumonia.

Acute pleurisy offers no difficulty in diagnosis, for the characteristic pain on breathing and the presence of a friction rub suffice for the diagnosis. Acute pleurisy with effusion, however, may be misleading, for at the time the patient is first seen the combination of fever and dullness at one base may suggest the possibility of pneumonia. Displacement of the apex-beat away from the side of the effusion is a most valuable physical sign in diagnosing the presence of fluid, but this sign may be absent when the effusion is not large. Rarely is a patient with an effusion so toxic as a patient suffering from pneumonia. The most constant physical sign of pleural effusion is dullness on percussion. Absent or weak breath sounds are usually present, but the fact that the breath sounds are audible should not exclude the presence of fluid, and in children bronchial breathing may be heard over an effusion. In all cases of doubt, and to help in deciding the ætiology of the effusion, exploration of the chest should be carried out. If done with care, this does not add to the discomfort of the patient, and if the presence of fluid is confirmed, it should be examined fully. In a young patient a serous effusion containing lymphocytes, and sterile on culture, is almost certainly of tuberculous origin. Such an effusion may be the first manifestation of pulmonary tuberculosis, but if a routine radiographic examination of these cases is made after the effusion has disappeared, many of the cases will reveal signs of infiltration in the underlying lung, although there may have been no definite symptoms of tuberculosis. In adults effusion may be the first indication of malignant disease of the lung, and if the effusion is hæmorrhagic the diagnosis of malignant disease is almost certain. Rarely does an empyema develop without previous signs of pneumonia, but in atypical pneumonia of streptococcal origin thin purulent fluid may be present in the chest four or five days after the onset of the illness. Later, thicker pus may be found on exploration, and only at this stage should open drainage of a streptococcal empyema be considered.

Pulmonary tuberculosis may manifest itself as an acute respiratory disorder, and the following acute types occur occasionally :—

(1) *Acute tuberculous broncho-pneumonia* usually arises as an acute spread from some focus in the lungs, and a history of previous tuberculous disease may be forthcoming, although this is not usual. Signs of consolidation are soon followed by signs of excavation and the presence of tubercle bacilli in the sputum confirms the diagnosis.

(2) *Acute lobar type* (caseous pneumonia) is uncommon, but the clinical picture may simulate closely that of lobar pneumonia. The temperature is, however, of a more swinging type, and the delayed resolution of the lung and the persistence of the high fever after the fourteenth day are the clues to the diagnosis. In the early stages, sputum may be absent, but the presence of tubercle bacilli can usually be demonstrated in the later stages.

(3) *Acute miliary tuberculosis* gives rise to marked dyspnœa and cyanosis, and the signs in the lungs are few as compared with the severity of these symptoms. After a short time signs of meningitis develop, and the typical features of tuberculous meningitis may be found in the cerebro-spinal fluid. If the diagnosis is in doubt radiographic examination of the chest will reveal a typical picture.

Spontaneous pneumothorax may give rise to very urgent dyspnœa, and the condition usually begins with dramatic suddenness. The physical signs of pneumothorax are definite, unilateral hyper-resonance on percussion with poor air entry on one side, together with displacement of the apex-beat to the opposite side of the chest, being the characteristic physical signs. The coin sound may be present, but is often absent. Symptoms and signs depend upon the extent of the pneumothorax, and if there is marked displacement of the heart, dyspnœa may be extreme. Pneumothorax may complicate many diseases of the lung, but of all the causes tuberculosis is by far the commonest. It may complicate advanced disease or it may arise when there have been no definite signs of tuberculosis. In every case any sputum available should be examined for tubercle bacilli, and radiography is of great value in diagnosis, especially in cases of hydro- or pyo-pneumothorax. Spontaneous pneumothorax may also occur suddenly in a patient enjoying good health. Although the possibility of tuberculosis must always be considered, cases do occur in which it is impossible to prove its presence and subsequent observation over many years shows that they do not develop pulmonary tuberculosis. Such cases may be due to the rupture of a localised emphysematous portion of lung.

In *massive collapse of the lung* the onset is sudden, with moderate fever and dyspnœa, which may be marked. Such a condition may develop after abdominal operations, and the lower lobe is the one commonly affected. Dullness and altered breath sounds may suggest the possibility of pneumonia, but collapse of the lung usually arises within three days of the operation, and rarely does pneumonia develop so soon. There is one physical sign which is of the greatest value in the diagnosis of collapse, and this is displacement of the apex-beat towards the side of the collapsed lung. In children the condition may follow the inhalation of a foreign body, and it has been observed after trauma to the chest. In adults, carcinoma of the bronchus is one of the commonest causes of collapse, but in these cases the onset is usually gradual.

Infarct of the lung may cause acute respiratory symptoms, the most important of which are pain, dyspnœa, and cough, often with hæmoptysis. Dullness may be found over the infarcted area, and a friction rub may be audible, but both the symptoms and the physical signs depend upon the extent of the infarct. The history of the case is an important clue to the diagnosis. It may follow dislodgment of blood clot in the systemic venous circulation in patients suffering from thrombo-phlebitis or from a dilated right auricle secondary to left-sided valvular disease. A patient may recover from a small infarct of the lung, but if the clot is a large one a main branch of the pulmonary artery may become blocked and death follows rapidly. Such a catastrophe constitutes one of the unforeseen dangers of abdominal operations.

Lastly, *bronchial asthma* must be included in the acute respiratory disorders. The characteristic feature of true asthma is that the dyspnœa is paroxysmal, and usually comes on during sleep. In a severe case the patient presents a picture of extreme respiratory embarrassment, and he makes every effort to overcome the condition. The rate of breathing may not be much increased, but the expiratory effort is characteristically exaggerated. On examination of the lungs the presence of hyper-resonance, very prolonged expiration, together with numerous rhonchi and sibili in both lungs, confirms the diagnosis.

FEVER WITHOUT SIGNS.

(DR. C. M. WILSON.)

The investigation of obscure fever—fever without signs or symptoms—is a common task of every physician. Medical literature does not adequately reflect its importance. The reason no doubt is that the subject is very resistant to arrangement and classification. A mere recitation of case-histories is distasteful to a tidy mind, but I doubt if a more pretentious presentation of the subject is as helpful.

At the outset, it is necessary to ask if there are, in fact, no signs or symptoms, or if they are present and have been overlooked. Symptoms are overlooked more commonly than signs. The legal cast of mind, sceptical and analytical, which weighs the value of evidence, and tests the credibility of witnesses, is not common in the medical profession. For one such, who has the faculty of sifting the relevant from the irrelevant, and of digging up the significant events of the immediate past, there are 20 physicians who are immaculate in their physical signs. It follows that students receive more instruction in eliciting signs than in the art of cross-examining a difficult witness. The experienced physician will admit that if he finds what others have not found it is because, in his hands, the history of the illness has become significant.

Even with that faith in the value of the history it is easy to overlook the directing symptoms. I have recently seen a woman with fever of some weeks' standing in whom I was unable to find signs or symptoms. But later, in hospital, I discovered I had not attached sufficient importance to a slight metrorrhagia associated with some menorrhagia—the expression of degenerative changes in a small fibroid found in the belated examination of the pelvis. I should have liked to enlarge upon the perfunctory histories which are so often put before me because, in my judgment, the art of questioning a patient is not taught as it should be in our medical schools—if indeed it can be taught, and is not more credibly a gift from nature. But I must pass on to the examination of the patient. In this, at any rate, students are well grounded.

It is part of the teacher's art to impart to students sound methods of investigation so that they shall continually put questions to themselves while their hands search the chest and abdomen for physical signs. Sometimes that method is left behind when they go into practice, but, on the whole, as I have said, signs are overlooked less commonly than symptoms. I remember a doctor's wife with fever, a persistent headache, and a fading rash where syphilis was not suspected. In the same week I encountered a second example of syphilis in the secondary stage as the cause of an obscure fever. But these cases stand apart in my experience. I do not remember syphilis in that rôle on other occasions. It was therefore rather surprising to me that, in a discussion on obscure pyrexia at the Medical Society of London ten years ago, so many speakers stressed the importance of keeping syphilis in mind when baffled by obscure pyrexia. In glandular fever small glands are sometimes overlooked, and it is only when they are found that a diagnosis has been made. But I must not multiply instances where difficulty in diagnosis had arisen from a failure to detect the signs.

If the history and the physical examination are unproductive I fall back on a leucocyte count. If there is a leucopenia I feel that my inability to attach a label to the illness will, at any rate, bring no hurt to the patient. The unrest is not in my mind, but in that of the relatives. If there is a leucocytosis the disquiet is in my own mind. Is deep-seated pus being neglected? Where there is a leucocytosis it is an urgent matter to make a diagnosis. I must be content to refer to only two maladies accompanied by leucocytosis. A perinephritic abscess is a fairly common cause of cryptic fever. Sometimes the signs are so nebulous that the site and even the fact of pus formation is not suspected. At other times, the difficulty lies in distinguishing it from other conditions. A woman with some weeks' fever had exquisite tenderness over the appendix, but she said that, during the first week of her illness, the pain had been confined to the region of the right kidney. There was a history of boils, a common precursor of perinephritic abscess, and a definite cloud of albumin in the urine to help in locating the pus in the perinephric tissues. There was a leucocytosis of 18,000. Often perinephritis is found without pus formation. A young doctor of athletic habit had severe tonsillitis and a week later was seen for very severe pain in the region of the kidneys. There was a cloud of albumin, tenderness over the kidneys, and a leucocyte count of 15,000. The condition cleared up in ten days.

Where there is a leucopenia the anxieties of the physician are less pressing. Typhoid is not often overlooked; it is in the minds of most physicians when the second week of a febrile illness comes without a diagnosis. Though tubercle can be very secretive in its manifestations it is surprising how seldom it appears in my records as a cause of obscure fever. In my experience, typhoid, tubercle, influenza, and malaria, the diseases which are commonly associated with a leucopenia, have not presented great difficulties. I say "commonly," because hard-and-fast rules cannot be made.

Those who have written on this subject—and their papers are as rare as obscure fever is common in the life of the general physician—have referred to encephalitis lethargica; pulmonary embolism with perhaps a cough, slight hæmoptysis and no signs; portal pyæmia, with a tumid abdomen and deep-seated malignant disease, as stumbling blocks. I have found pus between the lobes of the lungs a commoner source of error.

In the face of unexplained fever it is the first instinct of the inefficient to turn for help to a laboratory, though in no other field are the efforts of a competent clinician so well rewarded. Here, if at all, must he justify his existence. Here at last he can expose the fallacy that the pedestrian fellow with a knowledge of physical signs is the complete physiian. But on occasion the final word must be left to the laboratory. I have recently seen a doctor with undulant fever, with no symptoms except profuse sweating. The diagnosis depended on the character of the prolonged fever and on the agglutination tests.

If pyrexia in children had been included in my survey infections with the *Bacillus coli communis* without symptoms could not have been excluded. The association of an obscure sinus infection and fever has interested me. I remember a hard-bitten woman in the middle years of a hunting life who became irritable and jumpy. She could not play a set of tennis without excessive fatigue, and had had attacks of faintness. The climacteric had been advanced as an explanation. The antrum was full of pus, but there were no symptoms to draw attention to the condition. It was discovered in the course of routine investigation. Conversely, I have seen the sinuses blamed without justification. Mr. Herbert Tilley, in his book, has pointed out that a sinus which has been the seat of infection may remain opaque to transillumination and give abnormal X ray appearances long after the infection has died out. If this were borne in mind some unnecessary surgical adventures would be avoided.

It is inevitable in an address of this kind that I should appear as a successful detective. Where I have been less successful the issue and its lesson are known only to others. I say this because the beginning of all successful diagnosis lies in humility. To anticipate defeat, to keep apart what we know *from* what we think we know are the elements of wisdom. A confident nature whose faculties have been blunted by success finds it difficult to preserve that attitude of mind: without it keen minds lose their edge.

PUBLIC HEALTH SERVICES

THE HEALTH OF LONDON.

Statistics for 1930.—Estimated civil population, based on the preliminary reports of the 1931 census, 4,388,000. Births, 69,447; deaths, 50,992; birth-rate, 15·8; death-rate, 11·6. Death-rates per 1000 of the population: pulmonary tuberculosis, 0·87; all tuberculosis, 0·99; cancer, 1·57; pneumonia, 0·78; bronchitis, 0·44; measles, ·23. Death-rates per 1000 births: Infant mortality, 59; diarrhœa and enteritis, age 0–2, 9·9; young child, 1–5 years, 1; maternal mortality in childbirth, 3·33.

Dr. F. N. Kay Menzies says[1] the birth-rate was the same as in 1929, and the lowest ever recorded. The number of births was 1529 less than in 1918, when the influence of the European war was at its height. Deaths in 1930 were considerably fewer owing to the comparative absence of epidemic diseases and the low mortality from influenza. A winter not marked by abnormally severe weather kept the respiratory diseases low. These conditions were also favourable to infant life, and the infant mortality-rate was equal to the lowest rate previously recorded in 1927. In a table giving the statistics for the metropolitan boroughs the estimated populations are also founded on the provisional figures of the recent census.

MOTHERS AND INFANTS.

The following metropolitan boroughs had the lowest infant mortality-rates: Chelsea (40), Woolwich (42), Lewisham (43), Greenwich (48), Hackney (50), Camberwell (52), and Poplar (55); whilst the following had the highest: Shoreditch (65), Kensington (69), Islington (69), Stepney (76), Paddington (78), and Holborn (89). The boroughs with the highest rates for diarrhœa and enteritis under two years were: Stepney, 23·7; Islington, 15·8; Kensington, 14·7; and St. Pancras, 14·2. Dr. Menzies says the smallness of the figures make the maternal mortality-rates in the boroughs for a single year misleading. He therefore gives a table showing the childbirth deaths for the eight years 1920–27 and the three years 1928–30. In the whole county the rate was 3·1 per 1000 births for 1920–27 and 3·5 for 1928–30. The boroughs which had the lowest maternal mortality in 1928–30 were: St. Pancras, 2·2 (to be compared with 3·1 in the eight-year period); Poplar, 2·4 (to be compared with 2·9); Stepney, 2·5; and Greenwich, 2·6. During the earlier period Stepney and Greenwich had a rate of 2·4, which was the second lowest. The boroughs with the highest maternal-rates during 1928–30 were Westminster, 7·5 (eight-year period, 4·4); Hampstead, 5·7 (3·4); St. Marylebone, 5·5 (4·7); Stoke Newington, 5·2 (4·4); Woolwich, 5·2 (2·8); and Chelsea, 5·1 (4·8). Of the last-named boroughs, Chelsea, St. Marylebone, Stoke Newington, and Westminster had the highest maternal-rates during 1920–27.

INFECTIOUS DISEASE.

Small-pox of the mild type which was experienced in London in 1928–29 continued unabated in 1930. There were many missed cases. The notified cases numbered 5149, and small-pox appeared as one of the causes on the death certificates of ten London patients. No case of the virulent type occurred in London.

An epidemic of measles occurred in 1929–30 and caused 1059 deaths. It reached its maximum later in the year, and was less severe than the epidemics of 1927–28 and 1925–26, which caused 1427 and 1150 deaths respectively.

There were 13,411 notifications of diphtheria and 452 deaths, the case mortality being 3·3 per cent. The case mortality from diphtheria has fallen markedly since 1922, in the autumn of which year the Ministry issued a memorandum stressing the importance of immediate use of antitoxin. This was further emphasised by a letter to the medical press making it clear that the M.A.B. welcomed the use of antitoxin before cases were sent into their hospitals. The case mortality showed a slight rise in 1930, and it may be that the effect of the memorandum, &c., has worn off.

One case of anthrax, which proved fatal, was notified. The patient was employed at a flour and grain wharf, and had no known contact with skins or furs.

Of 75 confirmed cases of cerebro-spinal fever 51 proved fatal. In addition 29 deaths were recorded of cases unnotified or notified in 1929.

Of 45 confirmed cases of encephalitis lethargica 16 proved fatal, and in addition 49 deaths were recorded of cases unnotified or notified in previous years. Provision has been made for 50 adult post-encephalitics at Winchmore Hill, and owing to the long waiting list the council has decided to increase this accommodation to 165. Of 30 confirmed cases of poliomyelitis and polio-encephalitis four proved fatal, and in addition seven deaths were recorded of cases unnotified or notified in previous years. Special facilities are provided at the Western Hospital for acute cases, and for children suffering from paralysis, &c., at Queen Mary's Hospital, Carshalton. During the year three children were admitted to the Western and 45 to Carshalton. Mr. G. Perkins, F.R.C.S., and Mr. W. H. Trethowan, F.R.C.S., act in a consultative capacity at the Western and Queen Mary's Hospitals respectively. The mortality from influenza was lower than that in any year since 1889.

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[1] Copies of this report (L.C.C. No. 2850) may be obtained from Messrs. P. S. King and Sons, Ltd., Westminster.

At the end of the year there were 31,008 cases of pulmonary tuberculosis (17,478 male and 13,530 female) and 11,879 cases of other tuberculosis (6211 male and 5668 female) on the registers of the metropolitan boroughs.

Fatal Case of Yellow Fever.—The medical officer of health for St. Pancras reports the circumstances of a death from yellow fever in connexion with an investigation of this disease at a research institute. Early in the investigation a doctor and his laboratory assistant contracted the disease in a mild form, and both recovered. Later another laboratory worker who assisted at a post-mortem on an inoculated monkey had a severe attack but also recovered. About ten days later another of the laboratory staff had a moderately severe attack. During his stay in hospital a member of the hospital staff, who examined his blood, also contracted yellow fever but recovered. The person who examined the blood of the last-mentioned case contracted the infection, and his illness proved fatal in five days although convalescent serum was used on the first day. The history of this outbreak appears to show that the infection of yellow fever can penetrate through the unbroken skin, and that experimental work and the handling of instruments and apparatus contaminated with infected blood is extremely dangerous. After the occurrence of the last case the investigation was discontinued, and the animal house, laboratory, &c., thoroughly cleansed.

HOUSING.

Seamen's Lodging-houses.—Dr. Menzies gives an interesting historical note on the movement for the establishment of seamen's lodging-houses, which began with the erection of the Sailors' Home in Well-street in 1835. In 1854 an Asiatic home was opened for Lascars, and later other nationalities were catered for. The advent of Chinese seamen dates back some 50 years, and in 1915 the Chinese colony was estimated at 2000. Since 1910 the seamen's lodging-houses have been governed by by-laws and licensing, and in December, 1930, they were distributed as follows: 19 houses with 784 beds in Stepney, and 3 houses with 80 beds in Poplar. Approximately, beds are provided for nationalities as follows: 604 in 9 houses for British, 40 in 3 houses for Chinese, 12 in 2 houses for Russians, 20 in 3 houses for Scandinavians, 9 in 2 houses for West Africans, 174 in 2 houses for Indians, and 5 in 1 house for Germans.

Homeless Persons.—An account is given of the effort to cater for homeless persons found in the streets of London at night. The number of these has been greatly reduced by the philanthropic efforts made. This is shown by a comparison of the census made on the night of Feb. 13th, 1910, and on the night of Feb. 14th, 1930. In February, 1910, the homeless persons found were 732 men, 220 women, and 17 children, and in 1930 54 men and 25 women. The number of women is high, but the result of many years' observation leads to the conclusion that very few of the women are really homeless.

VENEREAL DISEASES.

The new cases of venereal disease dealt with were 722 more than in 1929. An attempt was made to ascertain from new cases whether the infection was of less or more than one year's standing. The replies indicated that in 53 per cent. of the syphilis cases and in 86 per cent. of the gonorrhœa cases the infection had taken place within a year. The increased number of attendances per new case of venereal disease suggests that the efficiency of the work continues to gain ground. Thus, in 1930, the attendances per new case were 46, compared with 44 in 1929, and 43 in 1928.

The pathological examinations, made for the treatment centres, have increased from 51,000 in 1919 to 125,000 in 1930; and those made for private practitioners have increased from 10,000 to 33,000. The number of medical practitioners entitled to receive free supplies of approved preparations is now 492. The council make grants-in-aid to six hostels, which provide accommodation for young women under treatment during the period of infectivity. The number of patients so dealt with was 272. On July 1st the V.D. clinic at the London Hospital was transferred to the council as an all-day clinic. The premises are rented from the hospital, but the staff is appointed and the clinic maintained entirely by the council. The clinic now remains open from 8 A.M. to 9 P.M., and provision for intermediate treatment is available daily, Sundays and Bank Holidays included. The director is Dr. T. Anwyl Davies. During the first six months the number of female patients increased twofold, and the regular attendance of all patients improved considerably. The attendances during the second half of the year were 76,183, as compared with 36,802 for the first half.

ADMINISTRATION.

Milk and Dairies Act.—Of 2331 milk samples taken at the London railway termini and biologically examined, 213, or 9·1 per cent., yielded tubercle bacilli, as against 7·5 per cent. in 1929. Notifications were forwarded to the county medical officers of health concerned, and as a result 106 cows were slaughtered under the Tuberculosis Order. In future these milk examinations will be carried out at the council's southern group laboratory at an estimated saving of £650 per annum. Since 1889, the year of the council's inception, the licensed cow sheds have diminished from 738 to 50. The existing sheds are mostly in the rural parts of Woolwich, or in Stepney and Bethnal Green, where they are needed for the supply of milk to Jewish residents in accordance with the requirements of their religion.

Antituberculosis Scheme.—The transfer of the poor-law accommodation to the council has enabled a better distribution of the tuberculosis patients among suitable institutions to be made. Of 4894 cases accepted for residential treatment 1241 were passed for observation beds, in order to determine diagnosis or suitability for sanatorium treatment. Of 1195 patients discharged from observation beds during the year 846 were diagnosed as tuberculous and 349 as non-tuberculous. About 23 of the council's former patients have been accepted as permanent employees at Papworth. A serious problem arises when a patient after 12 or 18 months' treatment and training has small prospect of entering the settlement. To meet this difficulty the council has agreed to pay the difference between the value of the patient as a wage-earner and the cost of his maintenance, subject to periodical review of each case.

Midwives Acts.—The midwives who gave notice of intention to practise numbered 901. They attended about 29,000 confinements, and sent for medical aid in 22·5 per cent. of their cases. Aid was summoned for the infants' eyes in 1369 cases, 321 of which proved to be ophthalmia neonatorum. The follow-up showed that 316 were completely cured, two were left with impaired vision, two died of intercurrent disease, and one could not be traced owing to removal. Post-graduate lectures for midwives were arranged in conjunction with the Middlesex County Council.

Nursing Homes.—The number of applications for registration as nursing homes approved by the council since the Act came into operation is 372. The number on the register at the end of the year was 271, 101 having been cancelled. Applications for registration in 1930 numbered 42, of which eight were withdrawn when the council's requirements were notified to the applicants, and two were refused. Dr. Menzies goes into some detail as to the requirements of the council and the principles which guide them in considering these applications.

Children Acts.—The supervision of nurse-infants under the Children Act, 1908, is carried out by 14 qualified nurses. At the end of 1930 there were 1773 homes under inspection, the number of nurse-infants being 2548. During 1930 it was necessary to remove only six nurse-infants, compared with 18 in

29. Five of the children were removed from one ster mother, and one child from another. In 101 the homes sanitary defects were discovered, and ercrowding in 84. Applications for adoption mbered 60, and the result of the hearings were full and two interim adoption orders, while two plications were refused and one withdrawn.

INFECTIOUS DISEASE

ENGLAND AND WALES DURING THE WEEK ENDED OCT. 3RD, 1931.

Notifications.—The following cases of infectious isease were notified during the week: Small-pox, 41 ast week 45); scarlet fever, 1843; diphtheria, 988; nteric fever, 32; pneumonia, 652; puerperal fever, 0; puerperal pyrexia, 107; cerebro-spinal fever, 25; cute poliomyelitis, 13; acute polio-encephalitis, 2; ncephalitis lethargica, 7; relapsing fever, 1 (from e Tyne); continued fever, 1; dysentery, 14; phthalmia neonatorum, 105. No case of cholera, lague, or typhus fever was notified during the eek.

The number of cases in the Infectious Hospitals of the London County Council on Oct. 6th–7th was as follows: Small-pox, 87 under treatment, 5 under observation (last week 63 and 4 respectively); scarlet fever, 1455; diphtheria, 1392; enteric fever, 20; measles, 114; whooping-cough, 358; puerperal fever, 0 (plus 6 babies); encephalitis lethargica, 216; poliomyelitis, 7; "other diseases," 140. At *St. Margaret's Hospital there were 17 babies (plus 10 mothers)* with ophthalmia neonatorum.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 1 (1) from enteric fever, 6 (2) from measles, 2 (0) from scarlet fever, 12 (6) from whooping-cough, 24 (3) from diphtheria, 59 (13) from diarrhœa and enteritis under two years, and 35 (7) from influenza. The figures in parentheses are those for London itself.

Four deaths from whooping-cough were reported from Liverpool, 2 from Manchester. Hull reported 4 deaths from diphtheria. Two deaths from diphtheria were reported from each of Plymouth, Liverpool, and Manchester. Diarrhœa was credited with 9 deaths at Liverpool, 5 at Birmingham, and 4 each at Nottingham and Newcastle-on-Tyne.

The number of stillbirths notified during the week was 270 (corresponding to a rate of 41 per 1000 *births), including 51 in London.*

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS.

PROROGATION AND DISSOLUTION.

THE Parliamentary Session was concluded on Vednesday, Oct. 7th. After brief sittings in both he House of Lords and the House of Commons the emaining stages of several outstanding measures ere disposed of. A Royal Commission was afterards held in the House of Lords where the Royal ssent was given to the Appropriation (No. 2) Act, he Foodstuffs (Prevention of Exploitation) Act, nd other Acts. The Lord Chancellor then announced he Prorogation of Parliament until Tuesday, Oct. 27th. ater a Proclamation was issued dissolving Parliament, nd the writs were issued for a General Election.

HOUSE OF COMMONS.

WEDNESDAY, OCT. 7TH.

Imported Liquid Glucose.

Commander SOUTHBY asked the President of the Board of rade the total amount and value of liquid glucose imported rom Russia during the last 12 months; whether he was ware that sweets made wholly with this foreign material ad to be marked as such, whereas sweets which contained large proportion of this material were being marketed as f British manufacture; and whether, in the interests of ritish consumers, he would see that any sweets which ontained a proportion of foreign material should be clearly narked as such, and that only such sweets as contained ngredients wholly manufactured in this country should be old as British sweets.—Sir PHILIP CUNLIFFE-LISTER eplied: During the 12 months ended August 31st, 1931, he imports of liquid glucose into the United Kingdom egistered as consigned from the Soviet Union amounted o 192,590 cwts. of a declared value of £104,704. As egards the second part of the question, I am not aware of ny specific requirement that sweets made wholly of foreign material must be marked accordingly.

Commander SOUTHBY: Will the right hon. gentleman consider having a marking order made so that consumers may know whether the sweets are entirely of British manufacture?

Sir P. CUNLIFFE-LISTER: It is open to the sweet manufacturers in this country to make application for a marking order under the Merchandise Marks Act, and if such application were made it would be referred to the committee.

Reduced Grants to Unemployable Blind.

Mr. ROBERT MORRISON asked the Minister of Health whether he was aware that the blind persons subcommittee of the Middlesex county council had passed a recommendation to reduce their grants to the unemployable blind by 2s. 6d. per week; and whether the Ministry had indicated to local authorities that economy should be exercised in this direction.—Mr CHAMBERLAIN replied: The answer to the first part of the question is in the affirmative and to the second part in the negative. The advice tendered by the Government to local authorities on the question of the reduction of local expenditure is contained in Circular 1222.

Mr. MORRISON: It surely ought not to be necessary to ask the unemployable blind to tighten their belts in this crisis.

Mr. CHAMBERLAIN: I think the circular I have already issued to local authorities deals with the matter as far as it is possible.

Repairs to Uninhabitable Houses.

Mr. NEIL MACLEAN asked the Minister of Health whether he was aware that many houses were becoming uninhabitable through the neglect of the owners to repair them; and whether he would consider the issuing of instructions to local authorities to compel owners to spend the percentage increase of rents for repairs upon the necessary repairs of these houses and thereby increase employment in the building trades.—Mr. CHAMBERLAIN replied: The issue of certificates on the application of tenants under the Rent Restrictions Acts is within the discretion of local authorities, and I am not empowered to issue such instructions as the hon. Member suggests.

Automatic Gas Alarms.

Mr. TOM SMITH asked the Secretary for Mines whether the inquiry into the use of automatic gas alarms had been completed and, if so, the nature of the report; and whether he proposed to take any action.—Mr. ISAAC FOOT replied: I have received a report from the Safety in Mines Research Board on the recent series of pit trials with a modified form of firedamp detector, and certain inquiries are now being made at the colliery concerned to complete the information I require for a full review of the position.

Mr. WINTERTON: Have not inquiries on this subject been proceeding for something like 18 months or two years, and is there any possibility of early attention being given to this question in view of the terrible loss of life through the lack of these detectors?

Mr. FOOT: Investigations and experiments have been proceeding in Germany. Those experiments have been repeated in this country on account of the difference in our coal. We have completed those experiments and I hope that we shall be able to come to a conclusion very shortly.

WALKER-ON-TYNE ACCIDENT HOSPITAL.—The report for the year ended on June 30th shows that 59 patients were admitted as against 98 in the previous year with an average stay of 8·15 days. There were 1601 out-patients; in 1929–30 there were 2453; and the most frequent accident (ten cases) was crushing injuries to the leg. Owing, presumably, to the larger ratio of unemployment, employers' contributions were paid on 3575 workmen as against 5000 in the previous year. The hospital has a balance in hand of £3356.

CORRESPONDENCE

IRREGULARITIES OF THE TEETH.

To the Editor of THE LANCET.

SIR,—Although Mr. Rushton's letter (p. 715) gives the impression that insufficient recognition is paid to the orthodontic methods which he advocates, he should, I think, really be regarded as one of those who is with us rather than against us. The following extract from my annual report on the scheme puts the matter in its proper perspective:—

> "There is only one note of warning. As a public authority, it is necessary to watch that enthusiasm does not outstrip judgment, and that cases which can be dealt with by a few judicious extractions to improve the condition shall not be subjected to prolonged treatment which is cosmetic rather than utilitarian."

I should add that the flat rate cost to the parents for complete treatment is 37*s.*, which by itself negatives the use of expensive or elaborate appliances.

Perspective is, I think, again at fault when Mr. Rushton writes of "a large orthodontic clinic" here. As a matter of actual working experience, we are dealing with all the cases that arise in our school population in one session a week. That is to say, one-eleventh of the total time at the disposal of the school dental surgeon is devoted to the orthodontic work. After nearly 25 years' experience as school medical officer I can say that far more gratitude has been expressed by parents as a result of our orthodontic work than of any other department of public health, child welfare, or school medical activities.

I admit the force of Mr. Rushton's arguments on nasal obstruction. My own experience supports Prof. Brash's view of the hereditary nature of most of these deformities. So often the mother's dental deformity is exhibited in the young child, or the statement is volunteered that it "runs in the father's family."—I am, Sir, yours faithfully,

ELWIN H. T. NASH.

Heston and Isleworth Urban District Council,
Oct. 7th, 1931.

DIPHTHERIA BACILLI.

To the Editor of THE LANCET.

SIR,—The annotation under this heading in your issue of Sept. 26th (p. 696) is of special interest, not only to all who are responsible for the treatment of diphtheria, but to those who are engaged in the practice of active immunisation against the disease. In the annotation it is remarked: "We evidently have a brand of bacillus which is *not amenable to treatment* with ordinary antitoxin, which it appears is usually made with a strain of intermediate characters." The question arises, does immunisation with the prophylactic preparations at present employed—toxoid, T.A.M., and T.A.F.—which are not prepared from the toxin of the *gravis* form of diphtheria bacillus, protect against infection by this severely toxic type? The Park and Williams No. 8 is, I understand, the strain usually employed for the production of toxin for use in the preparation of antitoxin, and this, I presume, is the toxin from which the various prophylactic preparations and the Schick test toxin are derived.

We are informed by Prof. J. W. McLeod and his collaborators at Leeds that this strain is intermediate in characteristics between the *gravis* and *mitis* forms. If the toxin of each of these strains of diphtheria bacilli is definitely specific, and if the antitoxin whi will neutralise the toxin of the *mitis* form will n neutralise the toxin of the *gravis* form it would appe that in future polyvalent antitoxin serum will b necessary in the treatment of diphtheria, and th prophylactic preparations will also be required t be polyvalent.

I am, Sir, yours faithfully,

GEORGE CHESNEY, M.B., D.P.H.,

Oct. 7th, 1931. Asst. Medical Officer of Health, Pool

THE OBSTRUCTING PROSTATE.

To the Editor of THE LANCET.

SIR,—Writing in a leading article last week (p. 804 on the pathology of this condition, you say that th only serious rival to the theory of adenoma is tha advocated by Mr. K. Walker in his Hunterian Lectur (1922)—*namely, that the enlargement is in the natur of a fibro-epithelial degeneration analogous to th condition which may be found in the female b at the menopause.* This theory is the one adv and fully described by F. T. Paul, of Liverpool, i an article which appeared in the *Liverpool Medic Chirurgical Journal* of July, 1910. The paper i reprinted in The Selected Papers of Mr. Paul, pu lished in 1925 by his colleagues on his seventy-fi birthday (Ballière, Tindall and Cox). Mr. Paul show that the accepted theories of enlargement fail; th both the prostate and the breast are controlled b their respective dominant sexual glands ([illegible] influences), and are subject to the disturbing influ of the climacteric period; that the microscopi appearances in both organs are similar, and th there is no known neoplasm so strictly limited to age-period. He concludes by stating that for above reasons prostatic hypertrophy is not due to chronic inflammation of septic or specific type, n to a neoplasm; but that it is an involution chan similar to that with which we are familiar in th breast. The paper is accompanied by five pages o beautiful plates showing the great similarity in th involutionary changes in the breast and prostate.

I am, Sir, yours faithfully,

Sunderland, Oct. 10th, 1931. WILLIAM ROBINSON.

A STREPTOCOCCAL CARRIER.

To the Editor of THE LANCET.

SIR,—Your annotation with this title (p. 805 on a report by Drs. Paul Courmont and Paul Sédallia suggests to me that possibly this infection may hav had a dental origin. Recent work on dental bacteriology published by Mr. A. Bulleid, in the *British Dental Journal* shows a hæmolytic streptococcus is not uncommonly present in cases of dental sepsis and is usually associated with an active type of infection. An X ray examination of the teeth of any midwives whose cases developed puerperal fever would, I think, be of interest.

I am, Sir, yours faithfully,

J. DUNLOP KIDD.

Queen Anne-street, W., Oct. 12th, 1931.

"LA CURE MARINE."

To the Editor of THE LANCET.

SIR,—With reference to the annotation under this heading in your issue of Oct. 3rd (p. 754), we on the East coast welcome your closing remarks as to the advantages of modern marine treatment in winter as well as in the summer. As medical officer of the Coatham Convalescent Home, Redcar, Yorks, I find an opinion prevalent among the medical profession, especially in the Midlands and West part of the country, that the East coast is unsuitable for convalescent patients during the autumn and winter months of the year, whereas the amount of sunshine and dryness of this part of the coast is a great asset towards the improvement and well-being of those convalescing after operations and others. This can be proved by our weight-charts which show increases in weight up to as much as 12 lb. in a fortnight. My object in urging this suitability of the East coast is to further the advantages of marine cure for patients and to continue the use of convalescent homes in this district because of their singular opportunities.

I am, Sir, yours faithfully,

Oct. 10th, 1931. ALEX. BROWNLIE, M.D.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE.

Surg. Comdr. J. M. Hayes is placed on the retd. list with the rank of Surg. Capt.

The following appts. are notified: Surg. Comdrs. J. R. Brennan to *President* for post-graduate course; A. G. McKee to *Victory* for R.N. Barracks, Portsmouth; and H. L. Dough[illegible] to *Sussex*.

Surg. Lt. Comdr. W. G. C. Fitzpatrick to *Courageous*.

Surg.-Lts. C. T. Hyatt to *Ormonde*, and J. L. S. Coulter to *Enterprise*.

ROYAL ARMY MEDICAL CORPS.

Maj. E. A. Strachan has relinquished the appointment of Phys. and Surg. to the Royal Hospital, Chelsea, and Maj. H. C. D. Rankin has succeeded to the post.

INDIAN MEDICAL SERVICE.

Capt. M. P. Atkinson to be Maj.

Lts. (T.C.) S. [illegible] Roy, N. P. P. Pillai, and M. S. Katre to be Capts. (T.C.)

Capt. H. S. Gupta relinquishes his temp. commn.

ROYAL AIR FORCE.

Flight Lt. J. D. Leahy is promoted to the rank of Squadron Leader.

The undermentioned Flying Officers are promoted to the rank of Flight Lt.: C. G. Harold, A. Sheehan, J. J. Corcoran, and A. H. Barzilay.

Flight Lt. J. L. [illegible] is transferred to the Reserve, Class D (ii).

OBITUARY

WALLACE HENRY, M.D. Dubl.

WE regret to announce the sudden death of Dr. Wallace Henry, which occurred on Saturday, Oct. 10th, at his house in Leicester, in the sixty-third year of his age.

Robert Wallace Wesley Henry was born at Dundalk, son of the Rev. H. E. Henry, and was educated at Wesley College, Dublin, and later at Trinity College (Dublin University), where he won prizes in the Natural Science School. He graduated as M.B., B.Ch. in 1892, proceeding to the M.D. degree three years later. Early in his career he manifested his interest in ophthalmology, and after holding various junior appointments became resident surgeon in the Birmingham and Midland Eye Hospital, and as far back as 1896 made an interesting contribution to the *Ophthalmic Review* upon Light Perceptive Power in Diagnosis and Prognosis. In 1902 he began his long and valuable career in Leicester; he soon became recognised by appointments and by practice as an authority on his subject. He was ophthalmic surgeon to the Leicester Provident Dispensary, and carried on his considerable professional work in that city for 30 years hand in hand with active labours in behalf of medical organisation. He was a fairly frequent contributor to the literature of his specialty, although during the war he made his mark as an organiser and not as an ophthalmologist, for he was appointed registrar of the 5th Northern General Hospital, and at the cessation of hostilities was promoted brevet lieutenant-colonel.

On the public side of his life Dr. Alfred Cox, medical secretary of the British Medical Association, writes as follows: "The death of Dr. Wallace Henry removes a man whose personality and work, both local and central, for the interests of his profession will leave an abiding impression on all those with whom he worked. I first knew him as the main author and inspiration of the Leicester Public Medical Service, which stands out as one of the finest pieces of medical organisation in this country. When other people were grumbling about the abuses of club practice, Wallace Henry and his friends tackled the matter from the practical point of view, and resolved to offer to the working classes of Leicester a medical service which should be better than anything they had ever had under the club system, should be given on terms which they could well afford, should cover the whole family, and should be under the control of the profession itself. There were few precedents, and these not very encouraging, but Henry made one which has stood the test of time, and the service is now more successful than it has ever been. Not only did it do away with the abuse of contract practice in the Leicester area, but it made the local profession organise itself as well as the service, and for the last 20 years there has been no area in the country where the medical profession has been more united, more practical, or has taken a saner view of medical problems in general. The fact that Henry was an ophthalmologist and never had any personal interest in contract practice, enhances the value of this work. Incidentally I may say that Wallace Henry, like many others of us among the older generation who take an interest in these contract practice problems, was always ready to pay a tribute of gratitude to the work of THE LANCET and its special correspondent, Mr. Adolphe Smith, who did so much to arouse the conscience of the profession on this matter.

"Henry filled every official B.M.A. post in the Leicester area, and was regarded as indispensable in Leicester and the Midlands when the profession had any problems to solve. He came on to the Central Council in 1912, where he quickly made his mark, not only by his pleasant manners, his ability in debate, and the ease with which he was able to coöperate with anybody who meant business, but more particularly by his practical knowledge of the affairs of the profession and of the way in which doctors should be handled. His position in the Association was hall-marked by his election in 1921 as chairman of the Representative Body, an office which he filled for the next three years with conspicuous success, carrying out a difficult task with tact, good temper, and firmness. He had to use the iron hand occasionally, but it was always concealed in the velvet glove. He continued in active central service up to the time of his death, and there are few committees of the Association on which he did not make his mark. He was particularly active in promoting the Ophthalmic Committee and its offspring the National Ophthalmic Treatment Board for providing the services of ophthalmologists on terms which the working classes can afford.

"*During the last year or two he had to cut down some of his work on account of his health.* His last appearance at the central office was appropriately enough at the Ophthalmic Committee on Oct. 2nd, when we all noticed that he was looking very unwell, but while he sadly admitted that he did not feel equal to as much work as formerly, he told me that though he had been advised to cut down his activities, work for the B.M.A. would be one of the last things he would abandon. I needed no assurance on this point, for during nearly the whole of my official career he has been one of the bulwarks of the Association—a man to whom we never applied in vain for help. His services were freely recognised by the Association *of which there was no more popular member,* and also by his own people in the Leicester area, who knew a good man when they saw him, and showed *their gratitude in many ways.* In April, 1930, they presented him with his portrait, and it was a very proud and happy evening for him, for, as he said, *there is no recognition so dear to a man who has set himself to work for his fellows as the appreciation* and affection of the men among whom he lives. It may be said without exaggeration that there were few activities in Leicester of a professional, educational, or social kind in which he did not take a leading part, and it is no platitude to say that Walter Henry was a man whose place will be very hard to fill."

MEDICAL NEWS

University of Liverpool.

At recent examinations the following candidates were successful:—

D.P.H.

Part II.—S. Canter, R. F. Corlett, J. Hatton, E. W. Jones, J. N. Parrington, L. G. Thomas, F. J. Welton, and E. B. Whittingham.

Harveian Society of London.

Prof. D. P. D. Wilkie will deliver a lecture on the Surgery of the Spleen, at 11, Chandos-street, W., at 8.30 P.M. on Thursday, Nov. 19th.

St. Paul's Hospital.

A post-graduate course in genito-urinary diseases is being held at St. Paul's Hospital, Endell-street, Shaftesbury-avenue, London, W.C., at 4.30 P.M. on Wednesdays until Dec. 16th (except Nov. 25th).

Child-study Society.

Dr. A. F. Tredgold will deliver the Cockburn memorial lecture at 6 P.M. on Thursday, Oct. 22nd, at the Royal Sanitary Institute, 90, Buckingham Palace-road, S.W. His title is Some Observations on Mental Development.

National Institute of Industrial Psychology.

Three lectures on Recent Research into the Causes of Industrial Accidents will be given by Mr. Eric Farmer at 6 P.M., on Mondays, Nov. 2nd, 9th, and 16th, at the Royal Society of Arts, John-street, Adelphi, London, W.C.

Medical Sickness Annuity and Life Assurance Society.

The annual general meeting of this society, whose address is 300, High Holborn, W.C. 1, was held in London on Oct. 7th. Dr. F. C. Martley, who presided, said that the sickness premiums had increased to over £72,000, and the life assurance constituted a record for the society, the new sums assured being over £300,000. The total funds had increased to over three-quarters of a million. The society's schemes for assisting members in the purchase of houses and practices had proved very successful during the past year, and the number of loans granted had increased considerably. Dr. Martley laid stress on the difficulties experienced by everybody connected with the investment of funds, and assured members that everything possible was done to ensure the safety of the society's investments. They would be glad to know that at June 30th last, when the year ended, the market prices of the stocks were higher than the book prices by over £9000. The situation had, of course, altered materially since then, and he drew attention to the statement issued to the press by a leading British life office, that there was a possibility of their postponing a declaration of bonus if any great financial catastrophe occurred. The society's next valuation would not take place until June 30th, 1932, and he hoped that by that time conditions would have become more stabilised. The motion for the adoption of the annual report was passed, and the two retiring directors, Dr. F. C. Martley and Mr. R. J. McNeill Love, were unanimously re-elected.

Prince of Wales's Hospital Dinner.

The annual dinner of the Prince of Wales's Hospital Reunion Association will be held at the Trocadero Restaurant, Piccadilly-circus, W., on Thursday, Nov. 26th, at 7.45 for 8 P.M., with Dr. J. Browning Alexander in the chair. No tickets will be issued, and the Secretary, Dr. Bertram E. Jones, 47, Queen Anne-street, W. 1, should be notified of the intention to be present and the number of guests.

London Medical Exhibition.

This exhibition opens at the new hall of the Royal Horticultural Society, Greycoat-street, Westminster, S.W., on Monday next, and will remain open daily until Friday from noon to 6.30 P.M.

Royal Northern Hospital Dinner.

The eighth dinner of the Royal Northern Hospital Past and Present Residents Dining Club will be held on Friday, Oct. 30th, at Frascati's Restaurant, Oxford-street, W., at 8 P.M. for 8.30 P.M. Mr. F. W. Harlow, president of the club, will take the chair, and Mr. A. M. Zamora will be the guest of the evening. Members are invited to bring guests.

Royal Dental Hospital of London.

The annual dinner of the staff and past and present students of this hospital will be held at 6.30 for 7 P.M. on Saturday, Nov. 21st, at the Trocadero Restaurant. Sir Norman Bennett will preside. The medical committee will be At Home to past and present students from 9.30 A.M. to 5 P.M. on the same day.

Pharmaceutical Society of Great Britain.

Lectures on Some Applications of Biochemistry to Modern Pharmaceutical Problems will be given by Mr. Frank Wokes, F.I.C., and Mr. F. J. Dyer, F.I.C., in the lecture theatre of this society, 17, Bloomsbury-square, London, W.C., on Thursday, Oct. 22nd, and succeeding Thursdays at 5.30 P.M. Admission to the first lecture without ticket.

Society of Medical Officers of Health.

The new president of this society is Dr. C. Killick Millard, medical officer of health for the city of Leicester, and he will assume office at a meeting to be held at the society's house, 1, Upper Montague-street, Russell-square, W.C., at 5 P.M. to-day, Friday, Oct. 16th. He will give an address on the Legalisation of Voluntary Euthanasia.

Post-graduate Work in Glasgow.

The winter syllabus of the Glasgow Post-Graduate Medical Association has now been issued, and may be had from the secretary, Dr. James Carslaw, at 9, Woodside-terrace, Glasgow, C. 3. Clinical demonstrations on general and special subjects will be given on Wednesdays at 4.15 P.M. from Nov. 4th to May 25th at various hospitals. There will also be special lectures in the Faculty Hall at 4 P.M. on Tuesdays from Nov. 10th to Feb. 23rd, and courses in special subjects at the Eye Infirmary, the Royal Maternity and Women's Hospital, the Radium Institute, and the Ear, Nose, and Throat Hospital. Clinical assistantships are available in many institutions.

Liverpool Cathedral Service.

The annual service in Liverpool Cathedral in aid of the Royal Medical Benevolent Fund will be held at 3 P.M. on Oct. 18th. The preacher will be the Rt. Rev. Bertram Pollock, Bishop of Norwich. Members of the medical profession and their friends are invited, and tickets may be had from the Hon. Secretary, 28, Rodney-street, Liverpool.

Glasgow Eye Infirmary.

The *William Mackenzie Medal* for 1930 for original contributions to ophthalmology has been awarded by the custodians of the Glasgow Eye Infirmary to Mr. E. Treacher Collins. He is to give an address at the Faculty Hall, 242, St. Vincent-street, Glasgow, on Oct. 30th, at 8.30 P.M., when the medal will be presented.

Wellcome Historical Medical Museum.

At the request of visitors interested in anthropology and archæology the present exhibition at this museum will remain open till Oct. 31st each weekday from 10.30 A.M. to 5.30 P.M. It was arranged in connexion with the centenary meeting of the British Association and includes the results of the latest excavations at Tell el 'Amarna and Armant, and a collection of jewels and ornaments from Egypt. The address of the Museum is 54, Wigmore-street, London, W.

Medical Golfing Society.

The autumn meeting was held on Prince's Course, Sandwich, on Oct. 10th, when 75 members entered for the various competitions. The results were as follows:—Bogey singles: M. Smyth (6), 6 up; T. H. P. Kolesar (scr.), 2 up; T. A. Torrance (plus 3), 1 up. Bogey foursomes: D. S. Gordon and L. C. Budge tied with R. W. Bristow and W. H. Lamplough, 4 up; Surg.-Comdr. A. C. Rusack and H. E. Scones, 1 up; M. Smyth and T. H. P. Kolesar, 1 down; T. A. Torrance and M. F. Macdonell, 1 down. Medal handicap singles:—*Canny Ryall cup*: H. Gardiner Hill (71 plus 1=72), G. Dawson (82 less 9=73), L. C. H. Budge (89 less 14=75), and H. Chapple (85 less 10=75.

Guild of St. Luke.

The annual service of this Guild will be held at St. Paul's Cathedral on Sunday, Oct. 18th, at 3.15 P.M. Seats will be reserved for medical practitioners and students, all of whom are invited to attend whether they are members of the Guild or not. Those wishing to take part in the procession should robe in the Chapel of St. Michael and St. George. The Guild was founded in 1864 by medical students, and was meant primarily for themselves and their fellows as a help in the special difficulties of the student's life. It still desires to appeal especially to medical students, but it also wishes to keep before the mind of all who deal with the diseases of the body "that highest part of man's nature which finds its expression in religion," its object being the mutual encouragement and support of its members in leading a Christian life. Membership is open to students and practitioners of medicine who are communicants of the Church of England, the clergy of which are eligible for election as clerical associates. Tickets for the service and further particulars concerning the Guild may be obtained from the mission secretary, Rev. S. D. Bhabha, M.D., 8, Drakefell-road, St. Catherine's Park, S.E.14.

Medical Diary

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

Tuesday, Oct. 20th.—5.30 P.M., General Meeting of Fellows. 8.30 P.M., Pathology. Paper: Dr. A. E. Boycott and Dr. C. L. Oakley: Oxygen Poisoning in Rats. Other papers will be read.

Thursday.—8.30 P.M., Urology. Paper: Dr. Clyde W. Collings (New York): Electro-surgery of the Bladder Neck.

Friday.—5 P.M., Disease in Children (Cases at 4.30 P.M.). 8 P.M., Epidemiology and State Medicine. Presidential Address: Prof. Major Greenwood: The General Register Office.

HUNTERIAN SOCIETY.

Thursday, Oct. 22nd.—7.15 P.M. (at Simpson's Restaurant, Bird-in-hand Court, Cheapside, E.C.), Dinner Meeting. Dr. David Ross: Some Problems of Gout (Presidential Address).

MEDICO-LEGAL SOCIETY, 11, Chandos-street, Cavendish-square, W.

Thursday, Oct. 22nd.—8.30 P.M. Dr. D. H. Geffen: Causes of Suicide, to be followed by a discussion.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

Friday, Oct. 23rd.—5 P.M., Sir Arthur Keith: Demonstration of Specimens Illustrating Changes in the Jaws of English People in Recent Centuries.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.

Monday, Oct. 19th.—4 P.M., Dr. Robert Hutchison: Harvey, The Man, His Method and His Message for Us To-day. (Harveian Oration.)

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

Monday, Oct. 19th, to Saturday, Oct. 24th.—Hospital for Sick Children, Great Ormond-street, W.C. Postgraduate Course in Diseases of Children. Every *morning*. *Lectures, Demonstrations.*—St. John's Hospital for Diseases of the Skin, Leicester-square, W.C. Course in Diseases of the Skin. Every afternoon. Clinics at 2 and 6 P.M., and Lectures on Tues. and Thurs. at 5 P.M.—Chelsea Hospital for Women, Arthur-street, S.W. Second week of course in Gynæcology.—Central London Throat, Nose and Ear Hospital, Gray's Inn-road, W.C. All-day course in Diseases of the Ear, Nose, and Throat. Two weeks.—Medical Society of London, 11, Chandos-street, Cavendish-square, W. M.R.C.P. evening lectures at 8.30 P.M. as *follows*:—*Mon.*, Dr. Maurice Davidson: The Clinical Aspects of Pulmonary Fibrosis. Wed.: Intrathoracic New Growths.—Medical Society of London, 11, Chandos-street, Cavendish-square, W. Free lecture on Wed., 4 P.M., by Mr. Kenneth Walker on Prostatic Enlargement.—Royal Waterloo Hospital, Waterloo-road, S.E. Wed., 3 P.M., free demonstration by Dr. Kenneth Playfair on The Value of the Electro-cardiograph in Diagnosis, with a demonstration of the interpretation of Electrocardiograms.—Miller General Hospital, Greenwich-road, S.E. Fri., 2 P.M., free demonstration by Mr. Arthur Gray of Gynæcological Operations. Further particulars from the Fellowship of Medicine.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

Monday, Oct. 19th.—10 A.M., Gynæcological Wards; Genito-urinary Operations; Skin Department. 11 A.M., Surgical Wards. 2 P.M., Surgical Wards; Medical, Surgical, Eye, and Gynæcological Out-patients.

Tuesday.—[illegible].30 A.M., Operations. 10 A.M., Medical Ward Demonstration; Dental Department. 11 A.M., Throat Operations. 11.30 A.M., Surgical Demonstration. 2 P.M., Operations; Medical, Surgical, and Throat Out-patients.

Wednesday.—10 A.M., Medical Wards; Children's Medical Out-patients. 2 P.M., Medical, Surgical, and Eye Out-patients. 2.30 P.M., Gynæcological Operations. 4.45 P.M., Venereal Diseases Demonstration.

Thursday.—10 A.M., Neurological Department. 11.30 A.M., Fracture Demonstration. 2 P.M., Medical, Surgical, Eye and Genito-urinary Out-patients. 2.30 P.M., Operations.

Friday.—10 A.M., Medical Wards, Skin Department, Dental Department. 2 P.M., Medical, Surgical, and Throat Out-patients. 2.30 P.M., Operations.

Saturday.—[illegible] A.M., Throat Operations. 10 A.M., Medical Wards, Surgical Out-patients; Children's Medical Out-patients.

ST. PAUL'S HOSPITAL, Endell-street, W.C.

Wednesday, Oct. 21st.—4.30 P.M., Mr. W. K. Irwin: Diagnosis and Treatment of Bladder Conditions.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.

Wednesday, Oct. 21st.—4 P.M., Dr. Scott Pinchin: Difficulties in the Diagnosis of Pulmonary Disease (Lantern Slides).

NATIONAL HOSPITAL, Queen-square, W.C.

Monday, Oct. 19th.—2 P.M., Dr. Riddoch: Out-patient Clinic. 3.30 P.M., Dr. Walshe: Polyneuritis.

Tuesday.—2 P.M., Dr. Walshe: Out-patient Clinic. 3.30 P.M., Dr. Symonds: Neurosyphilis (1).

Wednesday.—2 P.M., Dr. Martin: Out-patient Clinic.

Thursday.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Dr. Riddoch: Intracranial Complications of Sinus Infections (1).

Friday.—2 P.M., Dr. Adie: Out-patient Clinic. 3.30 P.M., Sir Percy Sargent: Surgery of the Pituitary Body.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

Tuesday, Oct. 20th.—5 P.M., Dr. H. T. Barron: Purpura.

Thursday.—5 P.M., Dr. G. B. Dowling: Mycotic Diseases.

ST. MARK'S HOSPITAL, City-road, E.C.

Thursday, Oct. 22nd.—4.30 P.M., Mr. E. T. C. Milligan: Peri-ano-rectal Inflamation.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL, Denmark Hill, S.E.

Thursday, Oct. 22nd.—9 P.M., Dr. Charles Newman: Modern Views on Gall-stones.

LONDON SCHOOL OF ECONOMICS, Houghton-street, W.C.

Wednesday, Oct. 21st.—5 P.M., Prof. R. Stenhouse Williams: Production, Distribution, and Value of Milk. (Second of three lectures.)

LONDON SCHOOL OF HYGIENE.

Tuesday, Oct. 20th, and following Thursday.—5 P.M., Sir George Newman: Rise of Preventive Medicine. (Last Heath Clark lecture.)

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.

Wednesday, Oct. 21st.—4 P.M., Sir Leonard Hill: Light and Air and the Health of the Citizen.

ANCOATS HOSPITAL, Manchester.

Thursday, Oct. 22nd.—11 A.M., Mr. H. Platt: Clinical Demonstration. 4.15 P.M., Dr. G. J. Langley: Hyperpiesia.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL, Gower-street, W.C.
Tuesday, Oct. 20th.—5.15 P.M., Prof. J. G. Ledingham: Resistance to Infection, Natural and Induced. (Second Lecture in Pathology.)

MANCHESTER ROYAL INFIRMARY.
Tuesday, Oct. 20th.—4.15 P.M., Mr. A. H. Southam: Diagnosis of Tumours of the Breast.
Friday.—4.15 P.M., Mr. P. R. Wrigley: Demonstration of Surgical Cases.

VICTORIA MEMORIAL JEWISH HOSPITAL, Elizabeth-street, Manchester.
Wednesday, Oct. 21st.—4.30 P.M., Dr. J. W. A. Hunter: The Treatment of Abortion.

UNIVERSITY OF SHEFFIELD.
Friday, Oct. 23rd.—3.30 P.M. (at the Royal Hospital), Prof. Simpson: Renal Cases.

Appointments

Liesching, A. C., F.R.C.S. Edin., L.R.C.P. Lond., has been appointed Honorary Medical Officer, Royal Isle of Wight County Hospital.

Nightingale, R., M.B., Ch.B. Manch., Surgeon under the Factory and Workshop Act for Stockport.

Wilson, J. St. G., M.B., C.M. Liverp., F.R.C.S. Eng., Hon. Gynæcological and Obstetrical Surgeon to the Royal Infirmary, Liverpool.

Woodeson, D. A., M.B., Ch.B. Liverp., D.P.H., Deputy M.O.H., Bolton.

London County Council: Fosbery, H. R., L.M.S.S.A., House Physician, St. James's Hospital; Harries, E. H. R., M.D., Lond., D.P.H., Medical Superintendent, North Eastern Hospital; Walker, C. G., M.B., B.Ch. Manch., Assistant Medical Officer, Hackney Hospital; Ronaldson, G. W., M.D., Ch.B. Glasg., D.P.H., Medical Superintendent, South Eastern Hospital.

Vacancies

For further information refer to the Advertisement columns.

Bath, Royal United Hospital.—H.S. £150.
Bedford County Hospital.—H.S. and Asst. H.S. At rate of £175 and £130 respectively.
Birmingham General Hospital.—H.P. and H.S. Each £70.
Birmingham, Little Bromwich Isolation Hospital, &c.—Med. Supt. £1000.
Blackburn Royal Infirmary.—Res. H.P. £175.
Bradford Royal Infirmary.—H.P. and two H.S.'s. Each £135.
Brentwood, Essex, High Wood Hospital for Children.—Asst. M.O. £350.
Bristol Eye Hospital.—Res. H.S. £150.
Cardiff Royal Infirmary.—H.S. to Ophth. Dept. At rate of £75.
Charing Cross Hospital, W.C.—Asst. Surgeon and Asst. Phys.
Derby County Mental Hospital, Mickleover.—Res. Jun. Asst. M.O. £350.
Derbyshire County Council.—M.O. £600.
East Riding Mental Hospital, Beverley, E. Yorks.—Jun. Asst. M.O. £250.
Edgware, Redhill County Hospital.—Res. Asst. M.O. £400.
Edinburgh Royal Infirmary.—Clin. Asst. for Ophthalmology Dept. £200.
Finchley Urban District, N.—Asst. M.O.H. and Asst. School M.O. £600.
Glasgow Royal Maternity and Women's Hospital.—Res. M.O. and Reg. £300.
Godalming, Surrey, King George V. Sanatorium.—Two H.P.'s. £80.
Grove Park Hospital, Lee, S.E.—Asst. M.O. £350.
Hastings, Royal East Sussex Hospital.—Sen. H.S. At rate of £150.
Hillingdon County Hospital.—Jun. Res. Asst. M.O. £250.
Hospital for Epilepsy and Paralysis, Maida-vale, W.—Res. M.O. and H.P. At rate of £150 and £100 respectively.
Hospital of St. John and St. Elizabeth, 60, Grove End-road, N.W. Res. H.S. At rate of £75.
Kidderminster and District General Hospital.—H.S. £150.
King's College Hospital, Denmark Hill, S.E.—Jun. Surgeon.
Kingston-upon-Hull, Anlaby-road Institution.—Two Asst. M.O.'s. Each £300.
Leeds Hospital for Women.—H.S. At rate of £100.
Leeds Maternity Hospital, Hyde-terrace.—Sen. and Jun. H.S. At rate of £52 and £26 respectively.
Leeds, Tuberculosis Sanatorium, Killingbeck.—Asst. Res. M.O. £250.
Liverpool Royal Infirmary.—Cas. O. At rate of £60.
L.C.C. Boys' and Girls' Schools, Acre-lane, Brixton.—M.O. £110.
London Female Lock Hospital, 283, Harrow-road, W.—H.S. At rate of £150.
London Temperance Hospital, Hampstead-rd., N.W.—Res. M.O. and Cas. O. At rate of £175 and £120 respectively.
Lowestoft, St. Luke's Hospital.—Asst. M.O. £350.
Manchester, Royal Children's Hospital, Pendlebury.—Res. M.O At rate of £125.
Manchester Royal Eye Hospital.—Jun. H.S. £120
Manchester Royal Infirmary, Roby-street.—H.S. At rate of £100–£200.
Minehead and West Somerset Hospital.—Res. M.O. At rate of £150.
National Institute of Child Psychology, 19, Warwick-crescent, W.—Clinical Registrar. Also Clin. Assistants.
Newcastle General Hospital, Newcastle-upon-Tyne.—H.P. and H.S. Each at rate of £150.
Newcastle, Royal Victoria Infirmary.—Hon. Asst. Physician.
Newport, I. of W., County Mental Hospital.—Med. Supt. £600.
Norwich, Norfolk and Norwich Hospital.—Cas. O. and H.S. £120.
Queen Charlotte's Maternity Hospital. New Isolation Hospital, Goldhawk-road, Hammersmith.—Res. M.O. £200.
Queen's Hospital for Children, Hackney-road, E.—Clin. Asst. in Orthopædic Department.
Reading, Royal Berkshire Hospital.—Cas. O. and Radiological H.S. and Res. Anæsthetist. Also H.S. for Blagrave Hospital. All at rate of £150.
Royal Eye Hospital, St. George's Circus, Southwark, S.E.—H.S. and Asst. H.S. At rate of £150 and £100 respectively.
Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—Hon. Surg. Reg.
St. George-in-the-East Hospital, Raine-street, Wapping, E.—Asst. M.O. £350.
St. John's Hospital, St. John's Hill, S.W.—Asst. M.O. £350.
St. Mary Abbots Hospital, Marloes-road, Kensington, W.—Clin. Asst. £100.
St. Mary's Hospital, W.—Res. Anæsthetist. £150.
St. Olave's Hospital, Lower-road, Rotherhithe, S.E.—Two H.P.'s. Each £80.
Saint Pancras Dispensary, 39, Oakley-square, W.C.—Res. M.O. £200.
Samaritan Free Hospital, Marylebone-road, N.W.—H.S. At rate of £100.
Sheffield Royal Hospital.—Ophth. H.S. Also Anæsthetist. £120 and £80 respectively.
Sheffield Royal Infirmary.—H.S. and 2nd Asst. Cas. O. At rate of £80.
Southampton, Children's Hospital and Dispensary for Women.—Res. M.O. At rate of £100.
Stafford, Staffordshire General Infirmary.—H.P. At rate of £150.
Stoke-on-Trent, North Staffordshire Royal Infirmary.—Asst. H.P. £125.
Sutton, Surrey, Downs Hospital for Children.—Asst. M.O. £350.
Ulverston, High Carley Sanatorium.—Asst. Tuber. M.O. £150.
Walsall, Manor Hospital.—Asst. M.O. £350.
West London Hospital, Hammersmith, W.—Hon. Asst. Surg. to Genito-Urinary Dept.
Western Ophthalmic Hospital, Marylebone-road, N.W.—Jun. Non.-Res. H.S. At rate of £100.
York County Hospital.—H.P., Res. Anæsthetist and Asst. H.S. Each £150.

The Secretary of State for the Home Department gives notice of a vacancy for a Surgeon as a Medical Referee, under the Workmen's Compensation Act, for Doncaster and East Retford County Courts. Applications should reach the Private Secretary, Home Office, Whitehall, London, not later than Nov. 4th.

Births, Marriages, and Deaths

BIRTHS.

Baker.—On Oct. 6th, at The Chestnuts, Stroud, Glos., the wife of Dr. A. Harvard Baker, of a son.

Lakey.—On Oct. 5th, at a nursing home, Chester, the wife of Dr. Ernest O. Lakey, of a daughter.

Lane.—On Oct. 7th, at Downside-crescent, Hampstead, the wife of Dr. C. Rickword Lane, of a son.

MARRIAGES.

Bowker—Leadbeter.—On Oct. 7th, at Holy Trinity, Brompton, London, Richard Ryther Stanser Bowker, F.R.C.S., to Greta Mary, second daughter of Mr. G. F. Leadbeter and the late Mrs. Leadbeter, of Newport, Mon.

Lansdown—Dove.—On Oct. 1st, at St. Mary's, Addiscombe, Reginald, younger son of Mr. Francis Lansdown, of Parkstone, to Elizabeth Dove, M.R.C.S., D.P.H., younger daugher of Dr. Percy Dove, O.B.E., and Mrs. Dove, of Eastfield, Croydon.

McEldowney—Lee.—On Oct. 5th, in London, A. F. McEldowney, M.A., M.R.C.S., L.R.C.P., to H. A. Lee, M.A., daughter of T. J. Lee, of Derby.

DEATHS.

Greig.—On Oct. 6th, at Little Cottage, Seaford, Sussex, Colonel Frederick James Greig, C.M.G., late A.M.S., in his 69th year.

Henry.—Robert Wallace Henry, M.D., of Leicester, passed unexpectedly away Oct. 10th, 1931. Interred at Leicester, on Thursday, Oct. 15th.

Humphry.—On Oct. 5th, at Quetta, also of Stede Court, Biddenden, Kent, Major-General Lawrence Humphry, C.B., C.M.G., D.D.M.S., late Medical Corps, Honorary Surgeon to the Viceroy of India, in his 56th year.

Paul.—On Oct. 10th, Dr. John Frederick Paul, of Isledon-road, N.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages and Deaths.

THE DOSAGE OF CIGNOLIN.

A correspondent writes: "In the interesting note on the use of cignolin in your issue of Oct. 3rd (p. 754), I think there is a slip on your part regarding the strength as it is given as 0·1–0·2 ad 10·0 in one place and gr. ½ ad ℥i.—i.e., one-tenth of the strength—in another." The smaller proportion of cignolin in the "suitable formula" was intentional, as it seems better to start on the safe side with an unfamiliar drug. The amount should be increased if it proves ineffective.

NOTES, COMMENTS, AND ABSTRACTS

THE LARYNGOSCOPE IN MEDICINE.

Presidential Address delivered before the Medical Society of London on Oct. 12th

BY HERBERT TILLEY, M.D. LOND., F.R.C.S. ENG.,
CONSULTING SURGEON TO THE EAR AND THROAT DEPARTMENT, UNIVERSITY COLLEGE HOSPITAL, LONDON.

IN his charming and instructive address delivered last year[1] our late president, Dr. R. A. Young, sketched the origin and development of the stethoscope, outlined its far-reaching influence on clinical medicine, and demonstrated some of the earliest as well as the latest models of that instrument. For this occasion I have set myself the parallel task of outlining the history of the laryngoscope with a brief sketch of the earliest phases of British laryngology. I shall then endeavour to illustrate the value of the laryngeal mirror in clinical medicine, and some developments which its use has given rise.

History of the Laryngoscope.

In 1817 Bozzini described an instrument with which he was able to see the vocal cords in a living subject. In 1829 Guy Babington, of Guy's Hospital, demonstrated his "glottiscope" before the Hunterian Society of London. It was an oblong mirror set in a silver wire and mounted on a long shank. It is of special interest to note that at a meeting of this Society on Dec. 15th, 1862 (Dr. Francis Sibson in the chair), Dr. Gibb read a paper entitled "Illustrations of the Practical Application of the Laryngoscope," and in the discussion which followed Dr. Streeter said that some ten to twelve years previously (1852–54) his larynx had been examined by Babington "within a hundred yards of the Society's rooms." Liston, of University College Hospital, in his "Practical Surgery," published in 1840, states that in the treatment of obstructive inflammation of larynx, a view of the parts may sometimes be obtained by passing behind the fauces a mirror similar to that used by dentists. Avery, at Charing Cross Hospital, also used a laryngeal mirror of his own device, and although he did not record his observations, many of his friends had seen him use it. Amongst them was Mr. Jabez Hogg, who spoke at the meeting of this Society to which I have already referred.

GARCIA.

I should like to emphasise the work of those early laryngologists of our own country, because it does not seem to me that they have received their due share of the honour of priority in the history of the laryngoscope. Whether they did not grasp its great possibilities or whether their interests were engrossed in what appeared to them to be more serious matters, one cannot say—but it is obvious that, in spite of the use they made of the laryngoscope, the waters of laryngology were not seriously troubled till 1854, when their peace was disturbed by one Manuel Garcia, who was neither physician, surgeon, nor scientist. He was a teacher of singing, who was born in Spain, practised his vocation, and made his discovery in Paris, and a little later came to London, where he published it, and also spent the rest of his long life. Of this discovery Sir StClair Thomson has told us[2] "Señor Garcia was at that time teaching singing in Paris; he had no medical or scientific training, and doubtless, like many before him, he was anxious to perfect his study of the throat by seeing a healthy glottis exposed in the very act of singing." How his wishes became realised was described by Garcia himself at the Seventh International Congress of Medicine, held in London in 1881:—

"One September day, in 1854," he said, "I was strolling in the Palais Royal, preoccupied with the ever-recurring wish so often repressed as unrealisable, when suddenly I saw the two mirrors of the laryngoscope in their respective positions, as if actually present before my eyes. I went straight to Charriere, the surgical-instrument maker, and, asking if he happened to possess a small mirror with a long handle, was informed that he had a little dentist's mirror, which had been one of the failures of the London exhibition of 1851. I bought it for six francs. Having obtained also *a hand mirror, I returned home at once very impatient to* begin my experiments. I placed against the uvula the little mirror (which I had heated in warm water and carefully dried), then, flashing upon its surface with a hand mirror a ray of sunlight, I saw at once to my great joy the glottis wide open before me, and so fully exposed, that I could perceive a portion of the trachea. When my excitement had somewhat subsided, I began to examine what was passing before my eyes. The manner in which the glottis silently opened and shut, and moved in the act of phonation, filled me with wonder." [The original mirror referred to above had been lent for this occasion by Mr. Albert Garcia, son *of Manuel Garcia.*]

In these graphic sentences we have the first authentic account of the discovery of what in modern parlance would be termed auto-laryngoscopy. In due course Garcia published his "Physiological Observations on the Human Voice," which may be found in the Proceedings of the Royal Society for 1885 (p. 399). For some 50 years he lived in this city, and when he had attained his hundredth year his portrait by Sargent was presented to him on March 17th, 1905, at a dinner given in his honour at the Hotel Cecil, when the chair was taken by Sir Henry Butlin. Honours and distinctions were showered upon him, while King Edward VII. personally congratulated the grand old master, and handed him the insignia of a Commander of the Royal Victorian Order. Garcia died on July 1st, 1906, and was buried in the churchyard adjoining St. Edward's Chapel at Sutton-place, near Woking—a charming spot which many of us have visited with the respect and homage due to the great man.

[Mr. Tilley then *showed an etched replica of* Sargent's portrait, which, he said, would give "some idea of the alert features and striking personality of Señor Manuel Garcia, but naturally they do not betray an amiable humour of which he was possessed. It is recorded that when, on the eve of his death, his temperature was 100° F., the old master smilingly observed, 'Of course everything with me now is 100.' "]

It would be interesting to speculate why the fact that he had been able to see his own vocal cords should have created such enthusiasm in professional and lay minds as to bring about the rebirth of laryngoscopy? In answering this question we must bear in mind that up till then the range of sounds of which the human voice is capable had been an invisible physiological phenomenon. Garcia watched and studied their action on his own person while they produced the different notes of the scale, and thus solved a problem which, for hundreds of years, had baffled investigators. To the scientific mind this was a great achievement. By the lay mind it was regarded as a much greater feat to see one's own vocal cords in action than to observe them in others. Señor Garcia was a singing master, and then—as now—the chance of a tilt at the failures of the professors of medicine and science was readily seized upon by less responsible editors. The pathological defects of the mechanism of voice production were not Garcia's concern, and he wisely left them to the care of physicians and surgeons who soon became skilled in the use of the laryngoscope. In fact, so *immediate* and so great was the impulse which his observations gave to the study of diseases of the larynx that it seems to me that only a captious and pedantic critic would deny that he should be regarded as the Father of Laryngology.

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[1] THE LANCET, 1930, ii., 883.
[2] Jour. Laryng., Rhin., Otol., xxviii., 394.

TÜRCK AND CZERMAK.

In 1857 Ludwig Türck employed "a small mirror for the investigation of diseases of the larynx" in the General Hospital of Vienna when, in his own words, he "learned of Garcia's investigations." It was asserted that Türck already knew of these, but this he strenuously denied. Up to this time all the observers whose names I have mentioned had employed sunlight reflected from a hand mirror, and consequently both their hands were employed in making a laryngoscopic examination. It was Czermak, of Buda-Pesth, who, following close on the heels of Türck, was the first to employ a large perforated concave mirror for reflecting sunlight or some artificial source of illumination. Furthermore, he held a projection from the frame of the mirror between his teeth, and rightly asserted that but for this invention of the concave reflecting mirror and employing it as he did, laryngoscopy would have been "a dead-born child." Czermak's innovations were of transcendent importance because it freed one hand for intralaryngeal manipulations. For this reason we may regard him as the founder of laryngeal therapeutics. Shortly afterwards his pupil, Semeleder, fixed the mirror on a spectacle frame such as is in common use to-day. In the *Wien. Med. Wochensch.* of March 27th, 1858, appeared a publication by Czermak upon the laryngeal mirror. This, the first publication of its kind, roused the resentment of Türck, who in his own writings initiated an undignified record of strife and jealousy between the two distinguished pioneers. In the same and in the following year Stork, Türck, and Gerhardt began to publish their numerous contributions to laryngology, and in these Türck was especially prolific.

MORELL MACKENZIE.

Morell Mackenzie visited Czermak's clinic in 1859 and returned to London in 1860. Here he put his training to such good purpose that in 1863 he was awarded the Jacksonian prize of the Royal College of Surgeons for his essay on "The Pathology and Treatment of Laryngeal Disease." Mackenzie was indeed the Father of English Laryngology, and for accuracy of observation and clarity of description his two volumes, "Diseases of the Throat and Nose," will always remain a classic. He was lecturer on these subjects at the London Hospital, and later founded the Throat Hospital in Golden-square. To this hospital he quickly drew an incredible wealth of material crowded with rare and interesting cases. His diagnostic acumen was only surpassed by his marvellous dexterity, and it was a never-to-be-forgotten experience to see him remove a laryngeal growth at the first attempt from an uninstructed patient, and this nearly ten years before the introduction of cocaine.

But like all newly born discoveries or departments in medicine, laryngology was looked on askance by the majority of those who held high positions as surgeons and physicians in the large hospitals of London and the provinces. Moreover, the devotees of the latest Cinderella were given to feel that they were not entirely respectable, nor was their acquaintance specially desired by their compeers. As one of my friends has expressed it, there appeared to be a feeling that to relieve a patient from the evil effects of over-eating or drinking was in some way a nobler and more worthy task than to care for his hearing or speech, even though these would appear to be essential if a patient is to make the best use of his life. Such a mistrust of innovation, whether fanned by jealousy or not, did not redound to the credit of the large teaching hospitals. The throat departments of those institutions were as a rule entrusted to a junior surgeon or physician of the staff, who frequently had no special knowledge of laryngology, and seldom had little interest in the work they were elected to do. It was a natu result that when the students left their hospit and began practice they knew little or nothing diseases of the throat and larynx. Conse their patients sought advice in the special hospit where *laryngology was making rapid* headway, a incidentally valuable, clinical material was lost the large general institutions.

As a result of this short-sighted policy, spec hospitals increased in number, and every facili was offered to students to make themselves pract cally acquainted with the laryngoscope and t pathological conditions which it alone could reve But fortunately there were a few eminent gene surgeons and physicians with longer vision a broader minds who were ready to test for themsel the new facts which the laryngoscope had broug to light. I need only mention such names as Hen Butlin, Charters Symonds, W. G. Spencer, de Hav land Hall, George Johnson, T. J. Walker (Pet borough), and David Newman (Glasgow). In d course and one by one the staffs of the large teachi hospitals recognised the situation and placed th ear and throat departments in the charge of surge possessed of high qualifications in general medic and surgery who, by special training and experien had become experts in their special branch of work

FELIX SEMON.

Finally, in 1893, Felix Semon, who for the p ceding 20 years had been rapidly increasing reputation in the science and art of laryngol founded the Laryngological Society of London, was warmly encouraged by the practical supp of those whose names I have mentioned as well by many of the more prominent junior laryngolog of the day. Sir George Johnson was elected president of the Society and Manuel Garcia was first honorary member. Its success was alm instantaneous, and at present the Section of La gology is one of the most active of those wh compose the Royal Society of Medicine. Next Morell Mackenzie, early English laryngology o more to Semon than to anyone else. In its in years he fought hard in season and out of sea against the prejudice which this new departm in medicine had engendered, and he lived to see to reap the rewards of his efforts. His scientific and contributions to laryngology are too well kn to need mention, but two of them will be associ with his name for all time—viz., the "Semon la in connexion with abductor paralysis of the cords, and his pioneer work on the clinical signs diagnosis of early intrinsic cancer of the larynx, its treatment by laryngo-fissure. On his retirem from practice a banquet was given in his hon in the Whitehall Rooms on July 2nd, 1909. Henry Butlin, then President of the Royal Co of Surgeons, presided and handed Sir Felix Semo cheque for £1200 which had been subscribed purchase a testimonial for him. This sum he u nanimously handed over to the London Univer to endow a lectureship known as the "Semon Lect ship for Laryngology." At this banquet he was recipient of illuminated addresses and presents f almost every country in the world. At a later d and on a public occasion, Sir George Makins (t President of the Royal College of Surgeons) said t "it was due to Semon's efforts alone that laryn logy, until then unrecognised, had become a resp able and respected speciality."

To those few of us who had some experience those difficult early years through which Brit laryngology passed, it seems almost incredible t to-day a graduate in surgery of the London Univ sity may take his M.S. degree in oto-rhino-laryngolo and a member of the Royal College of Surgeons m obtain a diploma in the same subjects. Furtherm how significant it is that in 1917 this old democra Medical Society of London elected for the first ti a laryngologist as its president in the person of tClair Thomson, who later on and for two years eld the same high office in the Royal Society of ledicine.

Laryngoscopy in Clinical Medicine.

Before such an audience as this it would be a poor ompliment if I spent more than a few moments in tressing the value of the laryngeal mirror as an idispensable handmaid of clinical medicine. My xcuse for mentioning it at all is because, even at his time of day, the significance of an apparently ivial laryngeal symptom is frequently overlooked. et me take as an example a slight degree of chronic oarseness or an alteration in the normal voice of patient which is unaccompanied by pain or any ther *subjective discomfort*. The *symptom may* be) caused by an intrinsic lesion in the larynx, or) the local manifestation of a general disease, or) the result of a distant but restricted pathological ctor.

INTRINSIC LESIONS.

Of early malignant disease of a vocal cord hoarseess is, for many weeks or even months, the only ymptom. Its significance is the more deceptive, ecause it so frequently occurs in adults who appear be in good health. A moment's glance in the ryngoscope will reveal a localised thickening or filtration of one of the vocal cords, or some other *thological appearances characteristic of epithelial* rcinoma. In these early days of its development, moval by laryngo-fissure or by exposing the growth radium inserted through a window made in the yroid cartilage will, in some 80–90 per cent. of the ses, prevent a recurrence of the disease for anyhing from 5 to 20 years, or even to the full span of e.

But what a tragedy lies in the delayed diagnosis the causation of what seems so trivial a symptom slight chronic hoarseness. For slowly the disease reads, and when at last pain or slight stridor pervenes, it is more than likely that only a comete removal of the larynx will save the patient's e, while incidentally condemning him to pass the st of his days in comparative silence. Whatever se may be forgotten of this address, I would plead should ever be remembered that chronic hoarseess of more than three or four weeks' duration mands a laryngoscopic examination, because the thological factors which may cause the symptoms e so frequently of a serious nature.

LOCAL MANIFESTATION OF GENERAL DISEASE.

What could better demonstrate the value of the ryngoscope than the following type of case. We e consulted by an apparently healthy young tient, who states that his voice has been "*a little oarse* for some weeks," that the medicine and stilles which were prescribed "have done no good." may be that in answer to our questions we are ld that he easily tires with a little exertion, that ere is a little cough but "nothing much," and he as never spat up blood nor seen any in the expecration. Furthermore, he will possibly reply that o one in the family has suffered from "chest iseases." But the laryngoscope may show you *a* light granular congestion of one vocal cord, a small umefaction or a slight superficial infiltration or ulcer t, or in the neighbourhood of, its posterior end.

These are early and typical local manifestations f laryngeal tuberculosis due to a primary lesion in ne or both lungs. The full establishment of the liagnosis and treatment of pulmonary infection are f course the concern of the physician, but without he laryngoscope many weeks or months of valuable ime have frequently been lost, and to the serious letriment of the patient.

Similarly syphilis, especially in its tertiary stage, may declare itself by a gummatous infiltration or ulceration in the larynx without any other visible stigmata of that disease. Here again hoarseness may be the only symptom of which the patient complains, and the value of the laryngoscope will be obvious.

SIGN OF A DISTANT LESION.

A not uncommon example is aneurysm of the aortic arch, which by pressure on the recurrent laryngeal nerve brings about abductor paralysis of the left vocal cord. The slight hoarseness may be the one and only *early symptom of the intrathoracic* lesion, and particularly so when the concavity of the arch is the first part affected. In *such instances* physical signs in the chest may be absent and the revelation of the laryngoscope may only be con firmed by the X ray. If *aneurysm* be *excluded*, the vocal cord paralysis may be caused by an intrathoracic growth, and the most frequent *disease to* effect this is primary malignant disease of the œsophagus *involving the* right or left current *laryngeal* nerve, which lies in close proximity to its outer wall.

In this same category of the distant but restricted lesion producing hoarseness by *paralysis of a* vocal cord one must not omit to mention central nerve lesions affecting the nuclei of the vagus or the proximal region of the trunk of the nerve before it leaves the skull, or again during its long passage down the neck into the thorax. I need only mention bulbar palsy, syringomyelia, disseminated sclerosis, tabes, pachymeningitis at the base of the skull, and the various tumours which may involve the recurrent laryngeal nerves in their upward course in the neck to their *distribution in the laryngeal* muscles.

If time permitted I might dwell on the frequency with which chronic laryngitis may be the prominent symptom, at any rate from the patient's point of view, in certain diseases of the kidney, or result from such local factors as septic conditions of the nasal accessory sinuses, the tonsils, or of the teeth. The point I want to emphasise in such diseases as I have mentioned is that the laryngeal symptom may be one *of the earliest manifestations, not only of a* lesion on the vocal cord, but also of a general disease or of a distant localised lesion, and that the laryngoscope provides us with the only means whereby our minds can be made alert to the serious possibilities of a sign which in the first instance may only be revealed in the mirror.

Further Developments of the Instrument.

I have *tried to show how much may be learnt from* an indirect view of the larynx, but what new worlds would be conquered if only one could look beyond the glottis by direct vision and see into the lower air passages, or through the œsophagus into the stomach! This was the ideal aimed at by laryngologists in the last decade of the nineteenth century, and in its attainment by the discovery of "peroral endoscopy" there was added to the history of medicine and surgery one of its most brilliant pages. The story has been ably written by Dr. Irwin Moore.[3] In 1805 Kirstein (Berlin) showed that it was possible in certain patients to see their vocal cords by direct vision with the aid of light reflected from a hand lamp (Caspar's). He shortly afterwards invented and employed the head lamp known by his name. Killian (Freiburg i.B.), in 1896, quickly grasped the greater possibilities of Kirstein's work, and invented instruments for examining œsophagus, trachea, bronchi, and bronchial tubes. A little later he had the distinction of being the first to remove a foreign body from a bronchus by the employment of them. In August, 1902, he read a paper before the Laryngological Section of the British Medical Association in Manchester in which he summed up the progress that had been made in the previous few years in the diagnosis and treatment of foreign bodies in œsophagus *and lower* air ways. As Irwin Moore rightly remarks, "It was this paper which made the profession throughout the world realise the capabilities of œsophagoscopy and bronchoscopy.". Killian's work was energetically taken up by his brilliant assistants, von Eicken and W. Brünings, and it was to the inventive genius of the latter that we owe many of the improvements in the instrumentarium of his master.

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[3] Jour. Laryng. Otol., May, 1926.

Till then the source of illumination was an electric bulb fixed near the proximal end of the tube. But in 1902 Einhorn (New York) placed it on a light carrier at the distal orifice, and this principle was adopted by Chevalier Jackson in 1904. To those who have used both methods it seems incredible that there can be any dispute as to the many advantages of distal illumination. In France it was Guisez (Paris) who may rightly claim the honour of having in 1903 commenced the popularisation of direct endoscopy amongst the medical profession. A host of others quickly trained themselves to become expert in peroral bronchoscopy and œsophagoscopy and have added much to the sum total of human happiness by saving lives from the accident of an inhaled or swallowed foreign body, or by the restoration to health from disease otherwise inaccessible. But for all time the name of Killian will be honoured as the founder of the method, while that of Chevalier Jackson will stand out as the most brilliant exponent of its art and therapeutic value.

During its earlier years direct endoscopy of the larynx, bronchial tubes, and œsophagus was of value mainly in extraction of foreign bodies. To-day it is recognised as the only legitimate method of intervention. But I have reason for thinking that our physicians and surgeons do not yet realise the value of bronchoscopy in the early diagnosis or treatment of certain types of pulmonary disease, and this even in such common ailments as chronic bronchitis and asthma, as well as some of the less frequent but more serious pathological conditions. The brilliant demonstrations of Chevalier Jackson in this country last autumn will be fresh in the memory of us all. I visited his bronchoscopic clinics in Philadelphia two years ago and was much impressed by the great relief afforded to chronic bronchitics and asthmatics by the removal of viscid adherent mucus from their bronchial tubes whereby the cilia were enabled to regain in some degree their normal function. It was the same with bronchiectasis, chronic pulmonary abscess, and other conditions demanding effectual drainage and aeration. In one morning I saw 23 patients treated by direct bronchoscopy, and of these many were little children. In no instance was a general anæsthetic employed.

FRUITS OF EARLY DIRECT INSPECTION.

Jackson has truly said that the physicians may inspect the chest, palpate, percuss, and auscultate it, and with the aid of the X rays look through it, and while it redounds to their credit that they more often than not make an accurate diagnosis, it is equally true that not infrequently their opinion must necessarily be tentative until the lapse of valuable time brings to light a further development of signs and symptoms which enables a conclusive diagnosis to be made. It is in such instances that an early direct inspection of the gateway to the lungs—i.e., the bronchi and bronchial tubes—would often save the physician's time, considerable mental and physical suffering to the patient, and possibly his life.

I have already referred to the relief which may be given to some common pulmonary affections, but let me mention an example of a more serious type of disease—viz., the adult who suffers from cough with an occasional streak of blood in the expectoration and in whom it has been possible to exclude tubercle and syphilis, and radiography has revealed no intrathoracic abnormality. In such circumstances bronchoscopy has again and again revealed an early benign or malignant growth localised in a bronchus. It is a matter of a moment or two to remove a portion for biopsy, and so establish the diagnosis and apply appropriate treatment.

We know that about 87 per cent. of the cases of malignant disease of the lungs commence in the bronchial mucous membrane, and Chevalier Jackson has stated in a recent communication [4]: "In our experience at the bronchoscopic clinic, malignant growth of the lung is, in some cases, for a long time a strictly local process. These growths are of a relatively low degree of malignancy and are quite sensitive to deep Röntgen therapy. Freedom from recurrence for as long as six years has been noted by us in cases of histologically proved carcinoma of the lung."

While thus emphasising the value of bronchoscopy, let me make myself clear in stating that while he who is an expert in this art may be the last in the coöperative team of physician, radiologist, serologist, and bacteriologist, yet though last in the list, his assistance may prove to be of the most value, and therefore his examination should not be delayed in circumstances where time may be the essence of success in the questions of diagnosis and treatment. Similar observations apply with equal force to certain diseases of the œsophagus, such as chronic inflammatory conditions, simple and malignant strictures, as well as to the removal of impacted foreign bodies.

In conclusion, while one may be tempted to wonder whether these handmaids of medicine—the laryngoscope, bronchoscope, and œsophagoscope—have not reached their limits of usefulness. I am thankful to say that my cerebral arteries are still sufficiently elastic to lead me to believe that in direct inspection of the lower air passages and the œsophagus there yet remains a large field which awaits the young and earnest worker who aims to advance the science and art of medicine. In the words of the greatest of all teachers, "There is nothing hid which shall not be manifested."

DEAFNESS AND ITS PREVENTION.

IN a presidential address to the London Jewish Hospital Medical Society, on Oct. 8th, Mr. Maurice Sorsby said that in 1927 there were 4038 totally deaf children in England and Wales, as against 192[illegible] totally blind. About one-third of the school population showed minor auditory defects, and these were even commoner among adults. So-called congenital deafness was responsible for only a small proportion of deafness seen in adults, and even congenital deafness was usually not hereditary but was a sporadic *affection of unknown origin*. The existence of a deaf parent was no proof that congenital deafness was hereditary; nor, on the other hand, was absence of parental deafness evidence of the contrary. The truly hereditary deaf offered a serious social problem owing to their tendency to inter-marry.

Deafness acquired in adult life was sometimes traceable to somatic defect; thus some forms of otosclerosis were hereditary. But, like most congenital deafness, most acquired deafness was due to non-heritable pathological lesions. In childhood tubo-tympanic infections, spread from the nasopharynx, were mainly responsible. Meningitis destroying the internal ear, and infectious disease giving primary lesions in the middle ear, accounted for a relatively small group. Syphilis was a declining factor. In adult life deafness was caused by the persistence of nasopharyngeal sepsis as in children, and in addition there was the large and indefinite group of cases named otosclerosis, chronic adhesive middle-ear disease, and otherwise. In old age nerve deafness, probably caused by auto-intoxications and arterio-sclerosis, was common.

It was estimated, said Mr. Sorsby, that in England and Wales alone there are 40,000 deaf mutes; they and many of their hearing relatives were potential breeders of a much larger group. The problem of uninherited deafness was to control infectious diseases and eradicate nasopharyngeal sepsis. Its gradual decline was noteworthy as due to the extensive organisation for the removal of infected tonsils in children. Otorrhœa was a late and dangerous stage in middle-ear infection, but modern methods of treatment were effective. Within the last three years its incidence in London County Council schools had been reduced by half.

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[4] Arch. Oto.-Laryng., 1930, xii., 747 to 752.

ADDRESSES AND ORIGINAL ARTICLES

HARVEY:

THE MAN, HIS METHOD, AND HIS MESSAGE FOR US TO-DAY.*

BY ROBERT HUTCHISON, M.D. EDIN., F.R.C.P. LOND.,
PHYSICIAN TO THE LONDON HOSPITAL AND TO THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET.

THE main biographical facts of Harvey's life are well known, and Sir Wilmot Herringham, in his fascinating oration two years ago, gave us some interesting details about the Harvey family. When all is said and done, however, we really do not know very much about him, for, as Sir Wilmot said, Harvey had a singular capacity for slipping through life unnoticed. We do not even know whether he attained that happiness at home which, according to Dr. Johnson, is the ultimate result of all ambition; for he was childless, and Mrs. Harvey is only a shadowy figure in the background of his life. It is a pity that he had no Boswell. If he had, we should not only have known many more details of his walk and conversation, but we should have had more of his pregnant sayings, such as those recorded by Aubrey: "That man is but a great mischievous baboon," and "That the Europeans know not how to order or govern their women, but that the Turks are the only people who use them wisely," and of those obiter dicta scattered throughout his writings —"Many things are discovered by accident"; "Men were first led to cultivate philosophy by wondering at what they saw," and so forth.

As it is, we might say of Harvey as the present Poet Laureate has said of Shakespeare, "that we know little of his human relationships is one of the blessed facts about him. That we conjecture much is the penalty a nation pays for failing to know the genius when he appears."

Character of Harvey.

Fortunately, however, the main outlines of Harvey's character are writ large in his works, indeed few scientific writers are more self-revealing.

And first of the characteristics so revealed I would put his *love of truth*. There is no word commoner in his writings than "truth," and we may be sure that none was oftener on his lips. "My trust," he boldly declares, "is in my love of Truth," or again, "I avow myself the partisan of Truth alone." Like all great discoverers he seems to have had a flair for truth, and that "fanaticism of veracity," of which Huxley spoke, and doubtless he was ready, as Huxley also was, to follow the truth into whatever abyss it might lead him. It was one of the greatest compliments that he ever paid to the Fellows of the College of Physicians that he assumed that in this matter they were like-minded with himself. "I even ventured to hope," he says, "that I should have the comfort of finding all that you had granted me in your sheer love of truth, conceded by others who were philosophers like yourselves."

Next perhaps to his love of truth was his *reverence for Nature*, which seems to mean in him the same thing as reverence for the Creator. He appears to have had what Einstein calls a truly religious feeling in face of Nature. "Nature, perfect and divine, is ever in the same things harmonious with herself." "Nature ever labours with foresight and intelligence." "That which is in conformity with Nature is right." "There is nothing either more ancient or of higher authority than Nature." "In Nature, just as there is nothing lacking, so there is nothing superfluous." These, and many similar quotations which might be made from his writings, reveal his attitude. In his reverence for Nature he reminds us indeed of some of the great poets. He would have perfectly understood Nature as the "Old Nurse," and would have subscribed heartily to the affirmation that "she never yet betrayed the heart that loved her."

Equal to his love of truth and his reverence for Nature was his *charity*, using the word in the scriptural sense. Of no man can it more truly be said that he envied not, vaunted not himself, was not puffed up. "Whilst I think the industry of everyone deserving of commendation," he says, "I do not remember that I have anywhere bepraised my own." He did not "behave himself unseemly," for, as Willis pointed out, all his public actions known to us were marked not only by propriety but by grace, and it was as true of him, as it was of his royal master on the scaffold, that he "nothing common did nor mean." He sought not his own and was not easily provoked. Even when his papers and scientific records were destroyed by the mob—which he says was the worst crucifixion he ever had to endure—his only comment is: "Let gentle minds forgive me, if, recalling the irreparable injuries I have suffered, I here give vent to a sigh." Finally, he thought no evil ("to return evil speaking with evil speaking I hold to be unworthy of a philosopher," he said), but, as we have seen, rejoiced in the Truth.

Imagination, if by that we mean the creative faculty of the mind whereby it moves outside experience, was not so conspicuous in Harvey as it has been in many famous discoverers. The "De Motu" shows little of it. His argument in that great book proceeds forward, almost in pedestrian fashion, from position to position, till at last he is driven, as it were against himself, to see the truth, and his other book, the "De Generatione," shows fancy rather than imagination. He was not one of those who saw a truth before he proved it. His mind did not take a sudden imaginative leap from the particular to the general, as Darwin's did, nor did he use all his faculties together to reach a result intuitively by a process hardly to be observed or analysed. He was more like Hunter in his love of facts, but he saw quickly the significance of facts within his experience and perhaps that also is imagination.

Few great men, said Dr. Arnold, have lacked *humour*, and there are indications that Harvey was not wanting in this priceless gift, though his humour was probably of a subacid and rather sardonic sort, and his laughter would not be the "sudden glory" of Hobbes. There is humour in his description of his discovery of an egg in the dead body of Mrs. Harvey's parrot, which had all its life been supposed to be a male, and his account of his visit to the reputed witch at Newmarket is also full of it in a quiet way. His contemporaries evidently had some trust in his humorous sense, as is shown in Selden's amusing description of the cure of a person of Quality "with two devils in the head," in which he secured Harvey's coöperation.

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* The Harveian Oration, delivered before the Royal College of Physicians of London on Oct. 19th.

He was able also to see humour even in little things. "How pleasantly are we moved to laughter," he writes in the "De Generatione," "when we see the poor hen following to the water the supposititious brood of ducklings she has hatched, wandering restlessly round the pool attempting to wade after them to her own imminent peril, and by her noises and various artifices striving to entice them back to the shore." His sense of humour must have been of value to him not only in furnishing him with hints of truth, but in enabling him to face with equanimity the prejudices of his Galenic contemporaries, just as Galileo, no doubt, found it helpful in facing the Inquisition and in enabling him to murmur, as he rose from his knees after his recantation, "E pur si muove." For humour, as Mr. Graham Wallas reminds us, is a powerful instrument for clearing away what Carlyle described as "the dead pedantries, inveracities, and accumulated dung-mountains" of scientific as well as social, political, and religious thought, nor need we have any doubt that Harvey was always able to recognise in himself what W. K. Clifford called the still small voice that whispers "fiddlesticks."

Reflecting upon the sense of humour in Harvey, it is permissible to regret that it is a quality not more abundant in scientific workers and writers. It would save us from much pedantry and dulness, from much solemn trifling calling itself research, and it would make scientific literature immeasurably more readable.

Love of truth, reverence and charity, with some tincture of imagination and humour, these were the chief features of Harvey's personality; but to complete the picture we must add moral courage—which Michael Foster said is an essential part of the scientific character—patience and reflectiveness. It must have required much moral courage to attack the Galenic stronghold, and it is no wonder that Zachary Wood apostrophised him as "Truly a bold man, indeed, O disturber of the Quiet of Physicians! O Seditious Citizen of the Physical Commonwealth!" His patience was shown not only in the carrying out of his investigations, but in his reluctance to make them public. He always bided his time. He was l[illegible] Darwin, who waited 29 years for the results of single experiment, and all of whose work on evolution was published after he was 50. In his slowness to publish he resembled other great men of his time, and the next century, Galileo, Newton, Bacon, Cavendish, and Gauss. How different from us to-day with our "preliminary notes" and disputes as to precedence in discovery! Lastly, he was a reflective philosopher. Like Hunter his delight was to think. We are told that he would withdraw himself to the leads of his house in town, or to caves in his garden in the country, in order to indulge in contemplation. Surely in this also he has a lesson for our unreflective time.

Personality in Science.

I have dwelt at some length upon the main features of Harvey's character because, in so doing, I believe that I am strictly fulfilling the injunction laid upon me to commemorate the benefactors of the College. For whilst we are grateful to our material benefactors, we owe an equal debt of gratitude to those who have conferred upon us the benefaction of their example. Of these Harvey himself is chief, but the College has reason to be thankful that it has never wanted amongst its Fellows men who were like-minded with him, but who—mute, inglorious Harveys as they were—lacked the touch of genius, or perhaps only the opportunity, which would have made them famous as he is.

In these days, when it is the fashion to denigrate great men, it is pleasant to remember that no one has yet seriously attempted to belittle Harvey. William Hunter, it is true, tried to depreciate his share in the discovery of the circulation, but he made no reflections on Harvey's character, whilst the curious statement made in a letter from Izaak Walton to Aubrey that Mr. Warner had told Lord Winchester that he (Warner) "had first found out the circulation of the blood and discovered it to Dr. Harvey, who said that ''twas he himself that found it,'" may probably be dismissed as apocryphal. No, on this our Festival let us boldly praise famous men, and on St. Luke's day let us be grateful, not only for the great discoverer, but for the man who exhibited in his character so many of the virtues of the beloved physician.

Apart from these domestic reasons, peculiar to the College, there are wider considerations which make the study of the character and personality of Harvey, as of those of all great discoverers, of interest. What part, we may ask, does personality play in the highest scientific work?

In art, of course, the personality of the artist is everything, and the same is true of literature—the style is the man himself. But in the case of science, the influence of personality is not so obvious. There is a tendency, indeed, to regard scientific men as a sort of robots who discover facts and laws by a purely intellectual process with which character has nothing to do. This, surely, is too narrow a view. Truth is as many-sided as human nature and requires the whole man to discover it. The great scientist must not only love truth as Harvey did, but he must have a feeling also for the beautiful and for the good. For truth is perceived by the emotions as well as by the intellect, and the poet and the discoverer are to some extent one. Moral qualities also are required, such as honesty and a sense of justice. Of course all scientific men do not possess these qualities. There is no type of mind which can fairly be described as scientific, for there is no intellectual specialisation ab initio, and scientific men are as full of prejudices and weaknesses as others; Harvey himself, let us be thankful, was neither saint nor sage. In proportion, however, as the emotional and moral elements in his personality are developed and cultivated, will be the likelihood of the investigator attaining to the truth. In the words of Pascal, "it is only the great Souls who attain to the utmost limits of science," or, as Harvey himself put it, "Nor does God give that which is most excellent and chiefly to be desired—wisdom—to the wicked." The real investigator must have faith, hope, and charity: faith in the object of his quest and in his power to reach it; hope to enable him to overcome all obstacles in his way; and charity, that is love of the truth, and, in medical science especially, love also of mankind.

And if personality is important in the attainment of truth, it is surely equally important as Truth's advocate. The comparative absence of opposition to Harvey's discovery was no doubt partly due to the disarming modesty with which, like Lister, he gave it to the world, just as on the contrary Pasteur's aggressive cocksureness aroused the resistance of his contemporaries. But if personality is of importance in science in general, it is even more important in medicine, which is both a science and an art, and in the application of medical science in practice, the personality of the doctor is as dominant as that of any other artist. Nor is its importance likely to lessen in future, for as investigation ceases to be individual and becomes more and more collective, so will it be essential to have leaders who, by their personality, can attract and control the subordinate workers.

If, then, personality is so important both in our science and in our art, it is surely matter for congratulation that our College, in selecting Members for the honour of its Fellowship, has always considered not intellectual attainment alone, but the character and quality of the whole man.

The Intellectual Climate of the Seventeenth Century and of To-day.

But Harvey's gifts of character and intellect, notable though they were, would not alone have enabled him to make his great discovery, and, like all innovators, he owed much to his predecessors. It is not usually difficult to trace the pedigree of great ideas—Einstein's theory is, perhaps, an exception to-day—for discoveries rarely spring to life full-grown like Minerva from the head of Jove. What Harvey owed to his predecessors in antiquity, and especially to Aristotle, has been shown by Dr. Raymond Crawfurd. He derived much from the Italian anatomists and no doubt also from his contemporary Galileo, the real founder of modern science, while his probable debt to Bacon and to Gilbert has been pointed out by Sir William Hale-White. All this is now familiar ground, and I do not propose to go over it again, but as "we are more children of the age we live in than of our own fathers," Harvey must be regarded as having been fortunate in the climate of opinion, to use Glanvil's phrase, in which his discovery came to birth. It has not always been so, of course. It is possible for a discovery to be born into an uncongenial mental climate, as Servetus and Semmelweis, to mention only two examples, found to their cost. But in Harvey's case the time was ripe for the man. Standing between the sixteenth and the eighteenth centuries, the seventeenth partook both of the credulity of the one and the scepticism of the other. It owed much to the Renaissance and more, perhaps, to the Reformation. It was a time of great awakening and renewal—the instauratio magna of Bacon. Scepticism and doubt, the active doubt which Goethe praised, were replacing credulity and dogmatism. Men were learning to trust reason rather than authority, to assert the liberty of individual judgment, to set the natural above the super-natural, and to look to the future rather than to the past. The imagination of the age had been kindled by the Copernican theory and by the new orientation of man to the universe which it brought about, as well as by the geographical discoveries of the preceding epoch. The century owed much also to its great poets. It has been well said by Buckle that it was no accident that Shakespeare preceded Newton, for the poets not only stimulated imagination, but led men back to Nature. Finally, as Dr. R. O. Moon has shown, it was an age greatly indebted to its philosophers, to Bacon, Descartes, and Spinoza especially, who created a spirit of scepticism and inquiry. Stimulated by their ideas, more men than ever before were turning away from the barren controversies of religion and devoting themselves to scientific pursuits, and these men animated and encouraged one another.

The practical results of the new outlook were also becoming apparent. Modern anatomy and physiology had already come to birth with the publication of Vesalius's great work only a generation before Harvey. Chemistry was emerging from alchemy, just as astronomy had already done from astrology, and in the early years of the century the science of physics also sprang into being. Nor was the revolt from authority seen only in science, it was being carried by Bacon into philosophy, by Hobbes and Glanvil into metaphysics, by Cromwell into politics, and by Harrington and Algernon Sydney into the theory of government. It was a time, in short, when anything seemed possible.

It is interesting to contrast the spirit of the age of Harvey which I have depicted with that of to-day. Like him, we live in a period of great unrest, political, social, and economic, but in our own age there has been a destruction of values, a throwing down of standards, and a removal of moral and intellectual landmarks of which the seventeenth century knew nothing. As a recent writer has said :—

> "Behind both the good and the evil manifestations of that age lay a philosophic absolutism and a certitude of conviction now lost. Even those men who had shaken off some prejudices and particular beliefs retained the conviction of the eternal and absolute validity of truth and duty—a conviction of the dignity of man and of the worth of his work still illuminated human thought."

The effect of the moral and intellectual chaos of our age has been disastrous to the arts and to some extent to literature, but it has not yet affected science. It may be, as Sir Frederick Andrewes suggested in his Oration more than ten years ago, that Western civilisation is now in a state of decline, but that science, as has always happened before, is affected last. We may even have to look in future to science for our poetry—and indeed there is more of the spirit of true poetry in the writings of the modern cosmogonists than in all the anthologies of neo-Georgian verse. But if the march of science shows no signs of slackening, at least we have lost the scientific optimism which inspired Bacon's "New Atlantis," and which was shown even more conspicuously by the scientific writers of the mid-nineteenth century. We are to some extent disillusioned with the results that science has yielded us. We are not so sure that the "Universe is friendly" after all, and that human life may not be merely "a discreditable episode in the history of one of the meaner planets," nor have we yet adjusted ourselves to the discoveries of modern astronomy any more than many men of Harvey's time had adjusted their beliefs to the great discovery of Copernicus. But this attitude is not likely to diminish the zest with which medical science in particular is pursued to-day. Never, on the contrary, has there been a time when conditions were more favourable for it, or when it and the practical benefits it brings were more sought after, for in our day the doctor has replaced the priest. This very popularity, however, has its own dangers. What we have to fear is the influence of the mass-mind, of the increasing importance attached to quantity rather than to quality in life, the undervaluation of knowledge for its own sake, and the exploitation of discovery for commercial ends. We may suffer also from the deflection of science by the pull of the politician, the philanthropist, and the press.

On the other hand, in all that concerns the apparatus of knowledge we have immense advantages compared with the seventeenth century. In Harvey's day there were no laboratories; scientific societies were only being founded, and scientific journals did not exist. The diffusion of new knowledge was slow and difficult, and investigators communicated their ideas and discoveries mostly by correspondence.

was its method of investigation. The doctrine of the humours, though it dominated medicine for centuries, has long been abandoned, but neo-Hippocratic medicine deserves the title of neo-humoralism, in so far as it attaches a great importance to the body fluids. It is in this respect to be regarded as a revolt against the "solidism" preached by Cullen in the eighteenth century, and later established on a scientific basis by the work of Virchow and of Bichat. It recognises that all the phenomena of life are derived from physico-chemical reactions in the fluids of the body, and that a disease is often due not, as the morbid anatomy school teaches, to the changes found in the organs after death, but rather to subtle alterations in the physical and chemical properties of the fluids, to which the changes in the tissues are secondary, and it sets itself as one of its tasks the early recognition by biochemical methods of the changes in the fluids, with a view to arresting the disease before structural modifications have taken place.

Neo-Hippocratism also attaches great value to the vis medicatrix. It is vitalistic as Hippocratic medicine was, and not mechanistic like the medicine of Harvey's epoch. It sees in adaptation a principle as important in biology as the principle of the conservation of energy is in physics. It regards this purposive striving of the organism to adapt itself to the environment and to heal and restore itself when diseased as marking off all living things from the inorganic world and is in sympathy with Sydenham's definition of disease as "an effort of Nature, striving with all her might to restore the patient by the elimination of the morbific matter." It finds in the cause of a disease not a single agent, but a "constellation of conditions" in the environment to which the organism is seeking to adapt itself, and it attaches just as much importance to the soil as to the seed. In this also it is true to the Hippocratic tradition, which always regarded disease as endogenous rather than exogenous.

It lays great stress, too, on the fundamental unity of the living body and on the interdependence or integration of its parts. It considers it to be the essential vice of specialism that it tends to concentrate attention on the parts and to ignore the whole. It holds that the very unity of the organism limits the value of the experimental method as opposed to the observational in so far as it proceeds by an arbitrary isolation of phenomena in order to investigate them.

The circulation of the blood is, for the neo-Hippocratist, one of the chief modes by which the integration of the body is achieved, for through the medium of the blood every cell is able to influence every other, even the most remote. Integration is also maintained by the endocrine hormones carried by the blood, and to an even greater extent by the vegetative nervous system.

Upon the degree of perfection of the integration of the individual organism thus brought about, and its constitutional balance, depends in large measure, according to this view, its capacity for adaptation, and therefore its power to resist those unfavourable conditions in the environment which make for disease. Disease is regarded as a disintegration of the organism; healing as a reintegration of it.

But whilst the body is in this sense one and indivisible, it is not a mere sum of its constituent parts. The organism is more than this—it is a resultant or synthesis, a quid novum, which must be studied both in health and disease, as a whole. This individualistic outlook is characteristic of Hippocratism, both new and old. It is, however, another plank in the neo-Hippocratic platform that whilst the human body is one and indivisible, no two human beings are alike. Man is not one but a diversity of creatures. One man differs from another, not only in his inborn hereditary character, but morphologically in his "anatomical personality," functionally in his "physiological personality," and, most of all perhaps, psychologically, in his mental and nervous reactions and peculiarities. Hence there arises a restoration of the idea of constitutions, which played so large a part in Hippocratic practice, and which has never entirely disappeared from medical thought. It is a doctrine of constitutions, however, no longer based upon the supposititious four humours, but upon measurable morphological and functional differences in individuals and upon the results afforded by biochemistry and endocrinology.

Of the three factors which go to make up personality or the "human biotype"—morphological, neurochemical, and psychological—by no means the least importance is attached by the adherents of neo-Hippocratism to the last. It is, indeed, one of the most significant dogmas of the school that the mental factor in disease must never be lost sight of, as it has so often been both by the "solidists" and by the exponents of "experimental medicine," but that, on the contrary, it is of the first importance to consider it in any effort to restore the whole man to health.

If this is the direction in which contemporary medicine is moving, it follows surely that fresh demands will be made upon clinical observation, though we may have to look at our material in new ways. The clinician will be restored to his pride of place, for it is he alone who can consider the patient as a whole. Clinical intuition and judgment, so often disparaged by the experimentalist, will rise again in esteem as the faculties by which alone the different factors concerned in the disintegration of the personality can be evaluated, whilst the methods of the laboratory will be reserved for confirmation and correction.

The new outlook will also demand a new anatomy—an "individual" anatomy, which will take account of the great morphological variations which may yet fall within the limits of the normal; and a new clinical physiology, which will study the functional variations in human beings and the reactions of different individuals to changes in the environment. In this way the material will be gathered for what the neo-Hippocratists call "the science of the individual."

New methods of treatment also must follow, along with a reintroduction of older methods which have fallen too much into disuse. Treatment by protein-shock and by blood transfusion and a revived interest in blood-letting are some of the results of neo-humoralism, and the employment again of what used to be called antidyscrasic methods and of alteratives may follow. At all events, the neo-Hippocratic attitude to disease is more hopeful than the feeling of therapeutic impotence engendered by the doctrines of the morbid anatomy school.

The Need for Bridge-makers and Generalisers.

I have dwelt at some length on what appears to be the orientation of medicine to-day and the fresh scope which it offers for observational methods, but, of course, all prophecy is vain. The invention of a new instrument or of a new method might suddenly do as much for medicine as the telescope did for astronomy, or the introduction of logarithms for mathematics. It may be that we are on the eve of some such revolutionary development. If it comes, it will probably spring from outside our own science, and from the sphere of physics or chemistry, and we may have difficulty at first in apprehending it. We need, therefore, at the present day, not only observers and experimentalists, but bridge-makers who will mediate between the laboratory and the bedside, and who will interpret and apply the work of the pure physiologist, physicist, or chemist, in so far as it bears upon practical medicine. Such men have always been few, and they must tend to get fewer as the sciences ancillary to medicine become more and more specialised; but the greater the divorce of medicine from pure science, the more are such bridge-makers necessary. How they are to be found and trained, and what position they are to occupy, are questions for the future, but that men capable of acting as liaison officers in the scientific army are necessary there can be no doubt. Nor can it be doubted that they could contribute materially, if not spectacularly, to the advance of medicine.

But most of all we need thinkers. Observation and experiment can give us facts, have indeed given us too many facts. What we require is men with imagination, men of the contemplative type of Harvey, fertile in hypotheses, who can see the inter-relation between the facts and who can bind them into manageable sheaves and induce from them those generalisations which we call natural laws.

Great generalisers, of course, are men of genius and cannot be produced to order. They flourish in some epochs more than in others, for there are, as Bacon said, waste tracts in time as well as in space. It may be that we are in such a waste tract now. Certainly men of great imaginative genius do not seem to be relatively so abundant as they were in the time of Harvey; perhaps the intellectual climate of to-day does not favour their appearance. I have already spoken of the restlessness and distractions of our day and their unfavourable effect on thought, and one might add to this obstacle the contempt for the humanities and for pure knowledge characteristic of a civilisation directed to merely material ends. It may be doubted, too, whether our present methods of education are favourable to the production of men of the type we most need. To give up early the humane studies and take to specialism is not the way to train the imagination, and tends to result in the production of skilled technicians rather than of educated men. Be this as it may, there is reason to expect that the clinical atmosphere will be more favourable to the production of generalisations than that of the laboratory. For the gifts of judgment and insight, the power to see the wood and not merely the trees, so necessary for fruitful generalisation, are just those required by the diagnostician. The clinical atmosphere, however, must be a wide one, for specialism is not conducive to the large and general view.

I would conclude by urging upon all the toilers in the field of medical science the necessity for unity. We need every worker, whether at the bedside or in the laboratory, who is sincerely seeking the truth as Harvey understood it, for in the house of Science there are many mansions. Let us not say I am of Paul; and I of Apollos, and I of Cephas; let the experimentalist not despise the clinical observer as superficial, nor the clinician the laboratory worker as narrow, nor let both contemn the thinker as visionary and unpractical. Let me rather exhort all, as I am bidden this day in Harvey's name to exhort the Fellows of this College, that they continue in love and affection amongst themselves.

THE SERUM THERAPY OF PLAGUE.

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Although bubonic plague has been raging in India for nearly 35 years, its treatment has hitherto remained symptomatic. It is true that a considerable measure of success has attended the prevention of the disease by the use of Haffkine's prophylactic, but attempts, whether in India or elsewhere, to produce a curative serum have hitherto been disappointing. That great desideratum, a bactericidal drug which shall effect sterilisation by intravenous medication, has been sought assiduously, but not found. Work on these lines has been carried on in the Haffkine Institute, and a number of substances—particularly of the mercuri-phenol group—have been synthesised by Caius and others of this laboratory, but even when they have been found in vitro to possess very high bactericidal action on *B. pestis* this action has not been found transferable to the living animal.

Haffkine's vaccine, whether plain or sensitised, has likewise been found to be ineffective once the course of the disease has started. The successful results recorded by d'Herelle in Alexandria in 1925, following the use of his anti-pest bacteriophage, raised great hopes, but when this remedy was subjected to a careful trial in India it proved ineffective and did not influence either the course of the disease or the case-mortality. Successful results have been recorded from the use of plague serum outside India, but when this method has been used in Indian hospitals the results have not been so satisfactory (vide Table I.). Whether this is due to the greater virulence of *B. pestis* in India or to some other factor is not clear, but d'Herelle, in his work on plague-phage, found that strains of *B. pestis* isolated in India were much more virulent than those from other sources.

A careful analysis of the results obtained by the use of various preparations of sera in our hospitals during the years 1897–1912 showed that their administration was attended by a reduction in case-mortality of not more than 7 to 10 per cent. The Advisory Committee on Plague Investigations in India reported in 1913 that, as a result of an inquiry into the matter, "the administration of the available sera is not a practical means of bringing about any material diminution in the mortality from plague; it may well be that better results will be obtained if the treatment could be commenced within a few hours of the onset of the disease; this, however, is in the great majority of cases impossible in ordinary hospital practice." The figures relating to these trials are given in Table I.

Choksy (1923), of Bombay, who has had unrivalled experience of the treatment of plague in India, found a moderate reduction of 10 to 20 per cent. in case-mortality from the use of anti-pest serum, and urged further research regarding its manufacture, on the ground that "it is the only remedy that holds out

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* This investigation, which has been carried out during 1927–31, has been financed throughout by the I.R.F.A., to whom we are indebted for permission to publish these preliminary results.

any hope of reducing the excessively high case-mortality which has so markedly characterised the epidemics at Bombay."

In 1927 a fresh attempt was made at the Haffkine Institute to approach this problem, and one of us (B. P. B. N.) was put on special duty under the auspices of the Indian Research Fund Association to carry out the investigation. Our previous work on plague vaccines showed us that the first necessity is to use the most virulent strains of *B. pestis* available, and to see that they retain their high degree of virulence throughout the process of vaccine manufacture.

TABLE I.

Compiled from the Reports of Bannerman and the Advisory Committee, Plague Investigations in India. Conditions of trial were reasonably accurate, controls being strictly comparable with the serum-treated.

Various sera tried in plague hospitals.	Years.	Treated.		Controls.	
		Cases.	Case-mort. %	Cases.	Case-mort. %
Yersin's ..	1897–1907	226	74·3	231	70·5
,, ..	1908–1910	146	65·1	146	71·9
Haffkine's ..	1897–1898	100	+14·0*	100	—
Lustig's ..	1897–1903	608	71·7	609	79·1
Terni's.. ..	1901–1904	110	80·9	110	81·8
Brazil's ..	1902–1904	70	82·8	70	85·7
Rowland's ..	1911–1912	76	68·4	76	77·6

* Mortality 14 per cent. higher than in controls.

These requirements we summarised as follows: (1) the immunising value of a vaccine is largely dependent on the virulence of the strain employed for its preparation; (2) strains isolated either from human cases or from experimentally infected rats exhibit individual variations in virulence; (3) emulsions made from plague-infected spleen are more virulent than those obtained from cultures on agar or in broth; (4) virulence of the strain is lost wholly or in part under prolonged cultivation on artificial media; (5) virulence of the organism is modified by passages from a highly susceptible animal into animals of relatively low susceptibility; and (6) an avirulent strain produces a vaccine of low potency.

The next desideratum in the production of serum is the choice of an animal which is naturally susceptible to the pasteurella group of organisms or which is readily susceptible to *B. pestis* by inoculation. Hitherto the horse has been the animal of choice, and the anti-plague sera of Yersin, Roux, Kolle, Lustig, and others were made from this animal. Haffkine (quoted by Bannerman, 1905) found that sheep produced a better serum than horses, whilst Terni (quoted by Bannerman) in Messina produced a more potent serum from mules and cattle than from horses. To what extent the susceptibility of an animal to infection by a particular organism influences the production of a potent serum is a subject which seems to have received little attention, but we decided to discard the horse and to attempt the production of serum from bovines and sheep, on the ground that they are animals naturally liable to pasteurella infection.

For convenience, we first used rabbits, which are highly susceptible to plague and to other pasteurella infection by laboratory methods, and we were able to immunise these animals to a point when they would withstand a dose of one agar slope a week of living virulent plague bacilli by intravenous injection over a period of two years. Incidentally, we found that immunisation by the subcutaneous route produced a lower grade serum than by the intravenous route. Serum from these immunised rabbits was then used as a curative measure in other plague-infected rabbits. The serum was administered in quantities not exceeding 2 c.cm., either as a single dose or in similar amounts at intervals of 24 hours, with the results shown in Table II.

TABLE II.

Time of administration of serum after infection.	Infected rabbits.	Mortality within 30 days after infection, per cent.
Immediately after ..	34	0
24 hours ,, ..	40	0
48 ,, ,, ..	43	9·3
72 ,, ,, ..	48	31·2
96 ,, ,, ..	25	32·0
Controls	33	94·0

From this it will be seen that all the animals were cured when the serum was given up to 24 hours after infection, and even when treatment was delayed until 96 hours after infection, when the animals are severely ill or even moribund, the serum saved two-thirds of the rabbits as compared with the controls. This experiment showed us that it was possible to manufacture an anti-plague serum of high curative value in animals of the same species, and the next thing to attempt was to produce serum from a large animal which would act similarly on those of a different kind.

Sheep were then tried, and were found to be very susceptible to plague. We inoculated 12 sheep with intravenous doses of virulent *B. pestis* varying from 0·003 mg. to 0·018 mg. of spleen substance of a rat which had died of plague. Six of the sheep died, five within 11 days of infection, with signs of acute plague. We now began the immunisation of sheep, using virulent cultures intravenously *in* graduated doses at weekly intervals, working up from 1/20th of an agar slope to 50 agar slopes at a dose. In the course of this very severe test most of the sheep died, and at the end of 16 months only three remained out of the original 21 animals. This sheep serum was then tested for its curative properties, side by side with the anti-plague serum of the Pasteur Institute at Paris, on a batch of 800 infected Madras rats. The results are seen in Table III.

TABLE III.

Time of administration of serum after infection.	Dose in c.cm.	Sheep serum.		Pasteur Institute serum.		Controls.	
		Rats.	Mort. %	Rats.	Mort. %	Rats.	Mort. %
Immediately after	1	100	13·0	100	52·0	85	88·2
24 hours after ..	1	100	43·0	100	83·0	100	90·0
	2	100	23·0	100	72·0	100	91·0
	3	100	32·0	100	77·0	100	97·0
Total	—	400	27·7	400	71·0	385	91·7

The results show that sheep serum is about two and a half times as potent as the Pasteur Institute serum, and saves the lives of about two-thirds of the infected rats, even when its administration is delayed for 24 hours.

Owing to the heavy mortality amongst sheep and their relatively small yield of serum, we next turned our attention to calves. We began with two eighteen-months-old calves weighing each about 300 lb. and injected them with living virulent plague cultures by the intravenous and subcutaneous routes. The latter gave too severe local and general reactions, so subsequently the intravenous route was used. As in one calf the dose was too rapidly increased (it died after the seventh injection when 40 agar slopes were given in a single dose), the other calf received more gradual doses, and it survived. It was bled at the end of 12 months when it had received 38 intravenous injections, beginning with one-fifth of an agar slope and ending with 100 slopes at a dose. The therapeutic value of its serum was then tested on 250 rabbits and 40 controls, side by side with the anti-plague serum of the Pasteur Institute of Paris. The results are shown in Table IV.

TABLE IV.

Time of administration of serum after infection.	Calf serum.		Pasteur Institute serum.		Controls.	
	Rabbits	Mort. %	Rabbits	Mort. %	Rabbits	Mort. %
48 hr. after, 1 c.cm. on 3 suc. days..	50	18·0	50	52·0	10	100·0
72 hr. after, 2 c.cm. on 3 suc. days..	50	24·0	50	64·0	10	100·0
72 hr. after, 1 c.cm. once	25	24·0	—	—	10	100·0
72 hr. after, 2 c.cm. once	25	16·0	—	—	10	100·0
Total	150	20·7	100	58·0	40	100·0

suc. =successive.

We regarded these results as very promising, in that our serum saved 80 per cent. of rabbits compared with the controls, and that such a small dose as 2 c.cm. saved over 80 per cent. of rabbits in which the infection had remained unchecked for 72 hours. The Haffkine Institute serum was nearly three times as potent as that prepared by the Pasteur Institute of Paris.

At this stage, acting on a suggestion of Dr. G. F. Petrie, of the Lister Institute, we carried out a comparative test on the value of their serum with the Haffkine Institute and other anti-plague sera. This experiment involved the use of 1768 Madras rats. The results are seen in Table V.

TABLE V.

Sera tested.	Protective value.	Antitoxic value.	Curative value.
	Rats used—		
	560	650	558
	Mortality, per cent.		
Unconcentrated.			
Lister Institute—			
"Armistice"	100·0	43·0	93·0
"Rowland"	29·0	30·0	39·0
Pasteur Institute.. ..	70·0	52·0	65·0
Haffkine Institute—			
Sheep	0	0	3·3
Calf	10·0	0	5·0
Normal horse	97·0	90·0	93·0
Concentrated—			
German "A"	42·5	—	77·5
German "B"	45·0	—	65·0
"Rowland"	20·0	—	37·5
Reconcentrated—			
"Rowland" ..	15·0	—	81·6
Controls	97·5	95·0	92·5

These results showed that the Haffkine Institute sera had much greater protective, antitoxic, and curative value than any of the other sera. The reconcentration of the Lister Institute serum "Rowland" appears to lessen its curative property very considerably.

AGGLUTINATION AND PRECIPITATION TESTS.

The normal sera of sheep, calves, and horses do not agglutinate the plague bacillus. The immune serum from sheep agglutinates living plague bacilli in a dilution of 1 in 64, that from calf in a dilution of 1 in 256, while that from the horse obtained from the Pasteur Institute and the Lister Institute fails to agglutinate these bacilli even in a dilution of 1 in 2. Experiments carried out with the filtrate of a six weeks' broth culture of *B. pestis* showed the presence of precipitins in the sera of immunised sheep and calves. These precipitins were absent from the anti-plague sera obtained from the Pasteur Institute and the Lister Institute, and also from normal sera of sheep, calves, and horses. Thus the anti-plague sera of the Pasteur Institute and the Lister Institute contain neither agglutinins nor precipitins for our local strains.

With this preliminary work as our guide, we were ready to undertake the crucial experiment on the attempted cure of human plague. By February, 1931, we had five sheep, three bullocks, and four buffaloes fully immunised. They had received 35 to 45 injections during the preceding 12 months, having reached a final dose of 100 agar slopes at each infection in the case of sheep and 200 slopes for buffaloes and bullocks. Before using the serum for human cases we carried out a short experiment to ensure the stability of the stored serum. Rabbits were given a dose of 1 c.cm. on three consecutive days, 48 hours after the infecting doses of *B. pestis*. The results were:—

Bullock serum ..	11 rabbits	..	mort. %	18·0
Buffalo serum ..	18 ,,	..	,,	11·1
Controls	8 ,,	..	,,	100·0

These results satisfied us regarding the retention of potency.

Use of the Serum in Human Plague.

An outbreak of plague at Hyderabad (Deccan) furnished an opportunity to try the effect of our serum on human cases. By the kindness of Colonel Norman Walker, I.M.S., and the staff of the Plague Hospital, we were able to carry out some observations on scientific lines. At first every alternate case admitted to the hospital was given serum and the control case treated with all the other usual therapeutic measures except serum. Later, every third admission was taken as a control for, as the efficacy of the treatment became apparent, much pressure was brought to bear on us to abandon the use of controls, and medical men refused to send cases unless serum treatment was guaranteed. We were able to observe the course of the disease in 76 cases which could be divided into three classes: (*a*) cases with heavy *B. pestis* septicæmia; (*b*) cases with light septicæmia or pure bubonic cases; and (*c*) cases diagnosed clinically as plague but not bacteriologically confirmed.

Of the 76 cases, 43 were treated with serum, with 15 deaths, and 33 controls without serum, of which 23 died. Table VI. shows the disposition of the cases.

Regarding Class A, the septicæmic class, it has always been held that the presence of any considerable number of *B. pestis* in the circulating blood was the invariable presage of death. A reference to Table VII. will reveal that all previous experience in India shows that such cases gave 100 per cent. mortality, and our 17 control cases all died, whereas four out of 15 recovered under serum treatment. Apart from recovery, some striking bacteriological observations were made on cases which ultimately succumbed, in that the septicæmia was observed to lessen or to disappear entirely under serum treatment, whereas in cases which received no serum septicæmia, once established, increased up till the time of death. Death in the former group of cases was attributable to myocarditis or other toxic manifestations resulting from the previous septicæmia.

TABLE VI.

Class.	Cultural diagnosis.		Under serum treatment.		Controls (without serum).	
	Bubo.	Blood.	Cases.	Deaths.	Cases.	Deaths.
A	+	+ + +	10	7	8	8
	−	+ + +	1	1	3	3
	+	+ +	3	2	4	4
	−	+ +	1	1	2	2
Total			15	11 (73·3 %)	17	17 (100·0 %)
B	+	+	7	1	3	2
	−	+	1	0	1	1
	+	−	11	3	4	1
Total			19	4 (21·0 %)	8	4 (50·0 %)
C	Clinically plague, not bacteriologically confirmed.		9	0	8	2 (25·0 %)

+ = less than 10 colonies in 0·25 c.cm. of blood.
+ + = less than 100 " " "
+ + + = 100 colonies and over " "

Class B, which includes the cases of moderate severity, also yielded interesting information, though the numbers are very small. It is in this class that we should expect to save the largest percentage by serum treatment. It includes the early or slight septicæmic cases (those with less than ten *B. pestis* in a quarter of a c.cm. of blood) and the bubonic cases without generalised infection at the time of examination. The factor responsible for death or recovery in plague is probably septicæmia and, if the infection remains localised either naturally or as a result of serum therapy, the recovery of the patient may be expected. We believe that the prompt administration of serum will prevent this blood infection and, as we have shown, may sterilise the blood even when early septicæmia has occurred. Thus in the small group of eight cases with early septicæmia, seven recovered under serum treatment, whereas only one out of four recovered without serum. The relationship of septicæmia to recovery under serum therapy is set out in Table VII.

TABLE VII.

Septicæmic cases in hospital admissions.		Berestneff and Mayr, Bombay, 1901. *Lustig's serum.*				Plague Commission, Bombay, 1908–12. Sera of Pasteur Inst. and of Lister Inst.			
Class.	Cultural diagnosis of blood.	Tr.	Mort. %	Cl.	Mort. %	Tr.	Mort. %	Cl.	Mort. %
A	+ + +	6	100·0	9	100·0	75	100·0	81	100·0
	+ +	9	100·0	5	100·0	15	100·0	24	100·0
B	+	28	78·6	9	77·7	47	74·5	47	74·5
B + C	0	28	71·4	10	50·0	85	25·9	70	34·3

See note under Table VI. Tr. = treated; Cl. = control.

These results show that in former experiments carried out in India three out of every four cases died with the mildest or earliest degree of blood infection, whilst of those which have had more than 40 *B. pestis* per c.cm. of blood every case has died.

Class C included 17 cases of undoubted plague from which *B. pestis* was not recovered; all nine cases treated with serum survived, whilst two of eight control cases died.

We began by giving doses of 100 c.cm. of serum, but we very soon found that this large amount of protein, when injected intravenously in one dose, was sufficient to embarrass if not to endanger the heart already poisoned by plague toxins. The fact that two cases in Class B died within two hours of injection suggests that these large doses may have precipitated the fatal result. Subsequently the dose was reduced to 60 c.cm. on admission, with a further dose of 40 c.cm. on the next day. In three cases repeated doses had to be given for several days, and it appears that if this practice could always be carried out more cases might be saved. From the clinical point of view the improvement of some cases under serum treatment was remarkable, the fever going down, eyes becoming clear, delirium disappearing, and the heart improving in tone within a few hours of the administration of the serum.

Remarks.

In this paper we have endeavoured to give a brief account of the laboratory work which led up to the use of this anti-plague serum on human cases and whilst the former shows conclusively that a potent serum has been produced, the human experiment, though very favourable, is inconclusive, in that the numbers were too small to carry statistical weight. The fact that the plague season in India has ended for the time being, and the removal of one of us (F. P. M.) to another sphere of duty, decided us to publish these results in the form of a preliminary report.

It may be argued that, as the epidemic was on the decline, our results were thereby vitiated, but the force of that argument is lessened in that we compared our cases with controls admitted alternately to the plague wards, and the careful observations on septicæmia in themselves provided a still more accurate standard of comparison. The paucity of cases was unavoidable, and though we made every effort to extend the range of observation during the plague season just past we were unable to find any area where a sufficient number of cases could be got together under conditions suitable for a more conclusive scientific experiment.

Conclusions.

1. It has been found possible to produce a more potent anti-plague serum than any that has hitherto been available. In preparing this, attention was paid to three points which are considered to be of importance—namely, the choice of the animal, the virulence of the strain used, and the method of immunisation.
2. Cattle were chosen rather than horses, on the ground that they are naturally susceptible to organisms of the pasteurella group.
3. A highly virulent strain of *B. pestis* was used in the production of serum.
4. The serum of immunised cattle was found to possess good agglutinative power and to be possessed of antitoxic as well as antibacterial properties.
5. The use of this serum as a curative measure resulted in the saving of the lives of a high proportion of rats and rabbits as compared with the controls.
6. In all these desirable properties the Haffkine Institute serum was shown to be far superior to any other anti-plague serum tested.

7. When applied to a small human epidemic the results were very promising. Out of a total of 76 cases, 43 were treated with serum, generally in one dose, and of these 15 died, whilst of the controls (alternate cases) 23 out of 33 died. Several cases with advanced *B. pestis* septicæmia recovered, and 7 out of 8 cases with early septicæmia survived, as compared with an invariable fatality in the former group and 75 per cent. mortality in the latter. We anticipate that the use of the Haffkine Institute serum will save the majority of lives in Classes B and C, and favourable conditions for a large-scale trial on these lines are awaited.

THE ASPHYXIAL ELEMENT IN GAS-OXYGEN ANÆSTHESIA.*

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IN a previous paper[1] I have given the result of a series of 200 cases anæsthetised by nitrous oxide and oxygen. The present paper brings the number to 553, which may be classified as follows:—

Upper abdominal (61).—Gall-bladder, 23; gastro-enterostomy, 13; perforated gastric and duodenal ulcer, 16; pyloroplasty, 2; partial gastrectomy, 1; high laparotomies, 6.

Lower abdominal (175).—Appendicectomy, 136; acute obstruction, 1; ovariotomies, 3; hysterectomies, 2; hysterotomies, 2; laparotomies (various), 31.

Non-abdominal (317).—Hernia and hydrocele, 42; bone plating and wiring, 20; anal and rectal, 21; suprapubic, 7; cystoscopies, 5; amputations (various), 6; nephrectomies (lumbar), 15; empyema, 5; radical amputation (breast), 7; neck operations, glands, &c., 13; mouth operations, 9; dental, 41; thyroidectomies, 3; ophthalmic operations, intra-ocular, 2; extra-ocular, 2; mastoid, 1; various, 118.

With the exception of a few of the earliest cases in the series, and a number of intratracheal cases shortly to be referred to, no agents other than nitrous oxide, oxygen and carbon dioxide were used. The figures show that a very wide range of cases has been dealt with, including not only a variety of operations, but all sorts and conditions of patients, taken without any attempt at selection, just as they arrived in the anæsthetic room. Particularly I would call attention to the abdominal, the dental, and the ophthalmic cases. Of the last-named, two were for buphthalmos, a condition of increased ocular tension involving an operation of great delicacy. Though the total number is small, I think the series must be regarded as a very severe test of any anæsthetic agent.

I have no reason to modify my earlier opinion of the overwhelming advantages of gas-oxygen in the first and third stages—i.e., the induction and post-operative periods—as compared with ether and chloroform; the evidence of patients, and also of ward sisters and nurses, makes this so clear as scarcely to need discussion. *During the operative stage,* however, it has not been possible to demonstrate such marked superiority; the most rapid enthusiast could never make such a claim. Nevertheless, in spite of assertions appearing from time to time in medical journals and in text-books to the effect that gas-oxygen cannot be relied upon to give adequate anæsthesia in robust adults, my series has shown quite conclusively that it is possible with this agent to produce relaxation sufficient to allow of even high abdominal operations being carried out on any kind of patient.

Upper abdominal operations provide the crucial test of any anæsthetic agent; in no other group of cases is such complete relaxation required. Of this group of cases in my series I would say that in one-third *relaxation* was good, and, as we say, "the patient took the anæsthetic well." In another third the relaxation was satisfactory, but the patient did not perhaps "take the anæsthetic so well," and the anæsthetist rather "sweated" (I know of no more descriptive term) over the effort to keep things going. In the final third the course of the anæsthetic was jerky, the anæsthetist did not succeed in completely eliminating those catchings of the breath and spasmodic contractions of the recti muscles which occur, for example, when the stomach is pulled forward or the gall-bladder pressed upon—little troubles with which some of us are only too familiar—and before edges of peritoneum could be brought together in the lax, easy way that the surgeon desires it was necessary to resort to secondary saturation, which, though remarkably effective, requires momentarily a very deep, and probably dangerous, asphyxiation. These cases I cannot look back upon as being by any means satisfactory. I kept notes of them, and I think that one-third good, one-third reasonable, and one-third bad represents fairly the results in upper abdominal surgery during the operative period. Even with the worst of them recovery was extraordinarily rapid, and, personally, I never failed to feel a glow of satisfaction at the condition of these patients in the post-operative period as compared with those that had been etherised or treated with other toxic agents.

COMPARISON WITH OTHER ANÆSTHETICS IN UPPER ABDOMINAL SURGERY.

Ether, I think, is generally recognised as the agent capable of producing the most complete relaxation, and may be usefully selected for comparison. For several years I used ether as a routine agent, by open, closed, and semi-closed methods, with and without local anæsthesia, and though I did not then take such careful notes as I have since done with gas-oxygen, I would estimate that in not less than one-third the relaxation, if one may judge by the crucial test of peritoneal suture, was not satisfactory to the surgeon or a source of complacency to myself. Of course, the personal factor cannot be eliminated, and it is likely that other anæsthetists would claim better results, but during visits to theatres in different parts of the country I have seen others struggle with the difficulties which I have so often encountered.

My series of upper abdominal cases includes 16 in which gas-oxygen was given by the endotracheal route, and these approached more nearly to the ideal than any others I have given. This method, in my opinion, is the one which is most likely to satisfy the immediate needs of the surgeon, just as, incidentally, as soon as the trachea is entered, it eliminates nearly all the troubles of the anæsthetist. The technique is undoubtedly difficult, since probably few anæsthetists possess the dexterity necessary to effect the passage of a catheter through the vocal cords without having recourse to an anæsthetic less evanescent than gas. In more than half of my own cases I found it necessary to use chloroform (which I preferred to ether) during induction, to get a sufficiently lasting relaxation of the throat muscles. These cases thus form an exception to the rest of the series, in which no anæsthetic other than nitrous-oxide was used. Heavy preliminary "doping" is neither necessary nor desirable, for I found that an injection of morphine sulphate gr. ⅙ gave the best results with average adults, whilst youngsters under 16 years of age were better without any preliminary medication at all.

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* Read before the Forfarshire Medical Association.

The Blueness of the Patient.

With the lower abdominal and non-abdominal cases of the series, results proved entirely satisfactory, and, speaking generally, I am quite certain in my mind that gas-oxygen would have been taken up and used as a routine long ago but for the fact that it is impossible with the majority of patients to secure the necessary relaxation without producing some degree of cyanosis. I do not wish to underestimate this feature—in fact it is a point that I am most careful to emphasise, because there seems to be a marked difference of opinion as to what constitutes cyanosis. I have seen patients turn blue at times when the anæsthetist has indignantly denied the presence of cyanosis. Under this term must be included all deviations from the normal pink or red to the blue or "dusky" side. With very few exceptions, all the patients in this series were at some stage of the operation so definitely cyanosed that blood and tissues assumed an ugly blue colour. This, without doubt, has been the chief objection to its use, not only by anæsthetists, but also by surgeons. It is easy to understand: tradition, training, teaching, since the earliest days of general anæsthesia, have insisted on the application of two main principles, "Keep the airway clear" and "Maintain a good colour." Every student and house-surgeon has had drilled into him that any sign of blueness must be investigated and corrected. To the surgeon blueness has meant congestion with consequent troublesome bleeding, so that in the ordinary way he hates the sight of blue blood.

With ether, chloroform, or any of the more recently used toxic agents this teaching is sound and good. In all cases where air is the medium whereby vapour is made to enter the lungs, or where in rectal or intravenous anæsthesia the patient is breathing pure air, there is sufficient oxygen intake to keep the blood bright pink or red. Loss of colour in these cases means, therefore: (1) an obstruction to the airway; (2) failure of respiration, circulation, or both, as the result of overdose or surgical shock. It is a sign of serious trouble, which must be instantly corrected. With such teaching I most heartily agree.

The blueness of gas-oxygen anæsthesia, however, is a totally different thing. Nitrous oxide has been shown to possess anæsthetic properties as compared with inert gases like nitrogen or hydrogen, but it is such a weak anæsthetic that, as we know, in order to secure the maximum concentration it is the custom to eliminate air, with its high percentage of nitrogen, and to use instead oxygen from cylinders. Even when the oxygen in the mixture has been reduced to the bare minimum necessary to maintain a pink colour, the concentration of gas so obtained is insufficient in the ordinary way to give anything like adequate anæsthesia unless we reinforce its action (1) by adding additional anæsthetic, such as ether; (2) by heavy preliminary doping and use of local agents [2]; or (3) by increasing the pressure and concentration of nitrous oxide, which means still further reducing the percentage of oxygen, when a new factor is introduced—viz., the addition to the blood of an asphyxial element.

There are many anæsthetists who advocate and use the former method, and, personally, I do not see that there is any objection to using ether and chloroform in this way, but from my own efforts, and from observations of the work of others, it seems clear that if gas-oxygen is to be used as the medium to carry ether or chloroform, the amount of ether or chloroform so used, if the patient is to be kept a *bright pink, will not be so small* as theoretically indicated, and, in fact, proves to be not much less than if air were used instead. Two or three drachms or half an ounce of ether, though minimal when considered in terms of the open methods, represents a very considerable effect when used in a closed gas-oxygen apparatus, *especially if rebreathing* is employed. Nevertheless gas-oxygen-ether is a decidedly useful anæsthetic mixture.

The anoci-association methods [2] have much to recommend them, but certainly have not found universal favour with surgeons in this country.

The third method is the one which I have used in this series. The technical application is of importance, and requires an apparatus capable of the most *accurate variation in percentage mixtures of the* gases, and capable also in emergency of instantly cutting off the nitrous oxide and delivering direct to the face-piece a mixture of oxygen and carbon dioxide under sufficient pressure gently to inflate the lungs. The maintenance of a free airway is absolutely essential, and though one deliberately induces blueness, one aims to avoid congestion. So rarely, however, does blueness occur without con*gestion that it is difficult for a surgeon* not used to this form of anæsthesia to dissociate the two. If the airway is clear, and heart and respiration are functioning without embarrassment, I do not see how congestion can occur. As a matter of fact, in my opinion, the most profuse bleeding does not occur with nitrous oxide, but in the red oozing wound which frequently accompanies open ether anæsthesia.

There are many anæsthetists and surgeons who will not tolerate blue blood simply because it is blue. They seem to object to it on cosmetic grounds. One has heard many times also the argument, "A blue colour must be bad for the patient, it means deprivation of essential oxygen." Such an argument, unsupported, leads nowhere. It cannot be doubted that sub-oxygenation is bad for the patient. Oxidation is the "flame," the very essence of life, necessary for the performance of all the vital functions, and a *depression of the oxidative processes is incompatible* with the maintenance of a healthy existence. But who can regard surgical anæsthesia as a healthy state? In order that the surgeon may be able to perform an operation of magnitude it is necessary that the patient be rendered unconscious, flaccid, and inert, and it is not conceivable that such a state can be produced by any benign process. All the general anæsthetic agents in common use are poisons which are soluble in the blood stream, and which act in virtue of their poisonous action on the tissue cells. Before rejecting a method of anæsthesia which requires the production of an anoxæmia it is necessary to consider the ultimate effect upon the tissues of anæsthetic substances in general.

CONCEPTION OF ANÆSTHESIA.

The amount of experimental work which has been carried out in this connexion is very large, and numerous theories have been brought forward by different workers in which coagulation, dehydration, protein precipitation, lipoid solution, osmotic changes, alterations of permeability of membrane, changes in electric potential, and other effects upon the cell have been variously advanced as predominant factors.

That the lipoid substances play a highly important part in anæsthesia is clear, but even to-day it must be admitted that we do not know exactly what constitutes anæsthesia. Most of the work has centred round the means by which the anæsthetic gains entrance to the cell, and what constitutes the essential change in the cell which destroys or reduces its excitability. This fascinating problem does not enter directly into the present discussion.

An observation of the highest importance, however, emerges clearly from the great mass of experimental findings—viz., that a constant effect of the anæsthetic substance on gaining entrance to the cell is so to interfere with its working that the ability to carry on the oxidative processes is considerably depressed. This aspect of the question has been brought out by a very large number of workers, and expressed most emphatically perhaps by Verworn, who says: "It may be considered as a firmly established fact that a process of depression is developed during narcosis which can be classified with the great group of depressions resulting from deficiency of oxygen." He shows also that "during narcosis the centres, in spite of their great requirement of oxygen, lose their capability of oxidative splitting up and consumption of oxygen."[3] In his view, general anæsthesia is equivalent to asphyxiation of the tissues. The state of asphyxiation does not, with most anæsthetics, occur in consequence of the deficiency of oxygen as such, but arises through inhibition of the oxidation processes by the anæsthetic agent. Therefore, and this is important, asphyxiation sufficient to cause anæsthesia may occur in the presence of abundant oxygen in the blood and lymph surrounding the cells.[4]

A comparatively recent and perhaps one of the most interesting conceptions of anæsthesia is that expressed by Crile in his "bi-polar theory of living processes,"[5] in which he shows that oxidation within the brain and other tissues is markedly depressed during deep ether anæsthesia.

Many workers will not accept any view as to the predominant rôle of asphyxia in the production of anæsthesia, and they have adduced evidence to show that under certain conditions anæsthesia may occur without a reduction of the oxidative processes.[6-8] Nevertheless I do not think that any one of these workers would deny that a depression of oxidative activity takes place during ordinary surgical anæsthesia. For example, R. S. Lillie [9-11] says: "It is true that the rate of oxidation in active tissues is lowered during anæsthesia, but the effect is rather a consequence than a cause of lessened activity." There is no need to labour this point—"cause" or "effect," there is abundant evidence to show that asphyxiation in more or less marked degree is present during all forms of deep surgical anæsthesia. This accounts amongst other effects for the cooling which takes place during operation. It is a well-established principle in surgical practice that the patient must be kept warm, as, for example, by raising the air temperature in the theatre, by having a hot-water chamber in the table, by exposing as little of the body as possible, and by covering with warm swabs such highly vascular structures as gut and mesentery. It is an argument against the routine use of the open ether method in which the patient inhales icy vapour through a frozen mask, and it indicates the value of warmed gases.

The association between lack of oxygen as the primary factor and depression of nervous excitability, loss of impulse, and unconsciousness, is so well established as scarcely to need comment. Clinically many examples occur to the mind, of which perhaps the most valuable in this connexion are cases of coal-gas poisoning, a condition resulting in formation of carboxyhæmoglobin which is so slowly reduced that the patient may remain for prolonged periods in a state of suboxygenation, but from which he may recover with comparatively little physical damage. Cases of anæmia and of congenital heart disease, where there is pre-existing suboxygenation, require during operation very small quantities of the anæsthetic. We know also that, wherever the normal oxidative processes of the cells are interfered with owing to lack of enzyme which results in faulty or inadequate metabolism of carbohydrates and fats, unconsciousness is liable to result. This occurs in diabetes, not only when there is insufficiency of insulin for the oxidation of sugar, but also in hypoglycæmia due to an overdose of insulin where, the sugar having been combusted, insufficient remains to undergo oxidation. The association of local oxygen-want and anæsthesia or analgesia is significant: obstruction of a main artery producing anæmia causes loss of sensation in the area affected; obstruction of veins, as produced by use of an Esmarch's bandage, also produces local analgesia. These two conditions are almost exactly opposites except for the anoxæmia which is present in both. It is well known that adrenalin reinforces the local action of such substances as cocaine, and it is likely that its action depends not only on limiting diffusion but also in virtue of the local anæmia. Cold, by reducing the local supply of blood and consequently of oxygen, produces varying degrees of anæsthesia which in the case of freezing becomes absolute, as is well illustrated during the insidious onset of frost-bite of the toes, where the part previously cold becomes increasingly more comfortable. This indeed constitutes the grave danger of frost-bite since, as a result of the local anæsthesia produced, attention is diverted from a very serious condition.[12]

THE ASPHYXIAL ELEMENT.

It would be remarkable if the close association between anæsthesia and the anoxidative state, and vice versa, were mere chance. Not only must it be accepted that surgical anæsthesia results in a tissue asphyxia, but it is reasonable to suppose that depth of anæsthesia and degree of asphyxiation form a constant ratio. Though the effect of all anæsthetic substances is to interfere with cell oxidation there seems to be an essential difference between the action of nitrous oxide as used in this series and the more poisonous agents, such as ether and chloroform. As already pointed out, nitrous oxide is a very weak agent, essentially non-toxic, and unable by itself in the absence of an anoxæmic element to produce deep surgical relaxation. Ether and chloroform produce their anoxidative effect in the presence of an abundant supply of oxygen in the blood stream. One may express the difference by means of a simile. It is possible to starve a man in two ways: one can give him abundant food and mix with the food a poison which makes him so sick that he cannot make use of the food; or one can simply withhold the food, leaving him unpoisoned and, unless the starvation has been too severe and too prolonged, he will be ready and able to make use of food as soon as it enters the stomach. In the same way, asphyxia can be produced by giving abundant oxygen and mixing with it a poison which so interferes with the tissues that they cannot make use of the oxygen, or one can simply withhold oxygen, leaving the cells unpoisoned; in this case, unless the suboxygenation has been too severe or too prolonged, the tissues, as soon as oxygen enters the blood stream, will take up what they require to carry on the vital oxidative processes. It is known that hæmoglobin very readily parts with and takes up both oxygen and nitrous oxide, so that one can immediately be substituted for the other, but, on the other hand, the toxic effect of the poisonous substances are not so readily and rapidly eliminated on removal of the anæsthetic agent. Theoretically, then, during practical administration we should expect to find that the patient would be more easily put under, and light and deep anæsthesia more quickly corrected, with nitrous oxide than with ether or chloroform; but, on the other hand, the course of the anæsthesia would not be so smooth and even as with the latter agents. We would also expect to find with nitrous oxide that recovery would be much more rapid and after-effects less likely to persist than with ether or chloroform. This, of course, is exactly what is found clinically, as was amply demonstrated in my series, and experimentally, as shown, for example, by Crile:

> "We found that in the state of deep ether anæsthesia, which interferes with the permeability of films around the cells and hence interferes with oxidation, the temperature of the brain and liver fell steadily till death occurred. On the other hand, we found that in nitrous oxide anæsthesia, which interferes with oxidation itself but does not interfere with the permeability of the lipoid films surrounding the cells, the temperature of the brain fell much more slowly."[5]

The Risks.

An obvious question is: How do the different methods compare as to safety? I wish to say at once that I entirely disagree with the all too prevalent opinion that gas-oxygen is an essentially safe anæsthetic. In my opinion there is no such thing as a safe anæsthetic—there may be a safe anæsthetist, but anyone undertaking so to interfere with the physiological workings of the body as to produce deep surgical relaxation must do so with a full sense of the responsibility involved. An anæsthetist at every operation literally takes the patient's life in his hands. I had no deaths in my series, nor did any case cause me undue alarm. It is necessary to state, however, that during the period covered by this series three deaths occurred in the Dundee Royal Infirmary at the hands of house surgeons. All of these patients could be classed as "bad risks." Risks of anæsthesia are by no means limited to gas-oxygen anæsthesia with an asphyxial element, indeed there are a number of as yet incalculable factors which remain to be elucidated in connexion with deaths from all anæsthetic agents. Certain points, however, must be referred to:—

(1) A depression of the oxidative processes means a reduction of the carbon dioxide output, and there is consequently with gas-oxygen a risk of acapnia, with resulting respiratory failure. This is actually more likely to occur with a gas-oxygen apparatus if the rebreathing tap has been closed than with, for example, the open ether method, since in the latter there must of necessity be some rebreathing under the somewhat sodden mask. Yandell Henderson's work leaves small doubt in the mind as to the effect of acapnia in the production of surgical shock[13] and, if cessation of breathing has occurred from this cause and the heart is failing, flooding with oxygen, the first instinct of an inexperienced administrator, is much less likely to be of value than the giving of carbon dioxide or, better still, a mixture of oxygen and carbon dioxide. In my opinion, no apparatus is perfect which does not carry a cylinder of carbon dioxide connected up for immediate use.

(2) It is sometimes thought that if, during gas-oxygen anæsthesia, the patient is not blue, all is well. Cyanosis, however, is not an accurate guide to the degree of anoxæmia or to the anoxidative state of the tissues[14]; a cachectic patient suffering from carcinoma, though pink, may be more deeply anæsthetised than a robust subject whose face is a rich purple.

(3) One must consider also the effect of a general anoxæmia on the heart muscle. It has been shown, both clinically and experimentally, that the heart possesses remarkable powers of maintaining a rhythmic contraction under the most unfavourable circumstances; nevertheless it cannot be doubted that lack of oxygen, if suddenly produced or severe and prolonged, must cause considerable embarrassment to the myocardium. It is likely that, before the heart muscle gives way from this cause, signs of distress will be present in the form of spasm and jactitation of voluntary muscle, but the risk of cardiac failure is a real one that must never be forgotten. It indicates the necessity for an apparatus capable of instantly correcting overdose, for careful induction, for the most alert attention during the whole operative period, for lightening the anæsthesia at every stage of the operation where complete relaxation is not required, and for reducing the total duration of deep anæsthesia to a minimum.

(4) As already indicated, the practical administration of gas-oxygen requires a comparatively complicated apparatus, and complete mastery of its working is obviously an essential for safety.

I think these four factors may account for some of the difficulties and dangers of gas-oxygen anæsthesia during the operation period. Of greater importance during the post-anæsthetic period is the risk of uncompensated acidosis with acetonæmia and all the unpleasant sequelæ. There can be no doubt that during gas-oxygen anæsthesia a disturbance of the acid-base equilibrium occurs; this has been shown to be a constant feature of suboxygenation,[14] but it occurs with all forms of anæsthesia. Crile and his co-workers have shown that during general anæsthesia there is an increase of the hydrogen-ion concentration, and that the acidity increases proportionately to the depth of anæsthesia until a stage is reached which is incompatible with life.[5] Consequently, in any case where the anæsthetic has been deep or prolonged, the risk of a severe acidosis is a real one. It is to be remembered, however, that an acute acidæmia may result during the operative stage from factors other than the anæsthetic—e.g., hæmorrhage or surgical trauma. A persisting post-operative acidosis is fortunately not common in adults, but seems to occur more readily with children.

There is still a great deal to learn about disturbances of the acid-base balance, but one thing has been clearly demonstrated—viz., that the body possesses remarkable powers of compensating any deviation from the normal. In a recent paper Findlay[15] points to the great difference between the effects of acidosis arising in the course of disease, and that experimentally or therapeutically induced where the organs are apparently healthy, as during anæsthesia. He remarks in this connexion "on the remarkable powers of the body in accommodating itself to new conditions and the completeness of these powers so long as the tissues are healthy." With gas-oxygen, as I have endeavoured to show, the tissue cells maintain their healthy state, whereas during anæsthesia with other agents they are poisoned; consequently there should be less risk of uncompensated acidosis with non-toxic nitrous oxide than with ether, chloroform, or other toxic agents. This appears to be borne out clinically. Although 90 per cent. of my cases were at certain stages of the operation deeply cyanosed, no such complication occurred. This risk of an acidosis is an argument against the deep anæsthesia theory put forward more often, I think, by surgeons than by anæsthetists.

One reason why gas-oxygen is less likely to be followed by uncompensated acidosis is that, owing to the rapidity with which changes in depth of anæsthesia can be effected, it is possible to allow the patient almost to come round during a large part of many operations—for example, during suturing in gastro-enterostomy—and thus the total period of deep anæsthesia is usually much less than with ether or chloroform. Clinical evidence of the lessened tendency to acidosis is found in the greatly reduced amount of post-operative vomiting. This distressing condition is not abolished by gas-oxygen (as used in my series), but when it occurs it is usually less severe than with other agents, and in a very large number of cases, including high abdominal operations, it has been entirely absent. Finally the lessened risk or respiratory complications is an argument in favour of gas-oxygen that must carry considerable weight. A death on the table is a tragedy; death from respiratory complications in the post-operative period is in many quarters looked upon with a degree of complacency which is surprising; but if a patient is to die from the effects of an anæsthetic, of what possible advantage can it be that he should survive the operation only to endure two or three weeks of acute discomfort and pain? It is not reasonable to consider the relative morbidity of different agents only in terms of deaths on the table. A patient may develop an ether bronchitis followed by broncho-pneumonia, from which he may apparently recover only to develop a fatal empyema; the anæsthetist, contented with the good relaxation secured during operation, may not even know of its occurrence. Could anything be more ironical?

Nitrous oxide is non-explosive.

There are numerous factors which enter into the practical use of gas-oxygen. The question of apparatus and technique are of the utmost importance, and perhaps not the least important factor is the individual surgeon. The object of this paper, however, is merely to indicate the range of cases in which gas-oxygen may be used without the need of other agent, and to show that neither practically nor theoretically can a carefully controlled anoxæmia be regarded as a contra-indication to its use.

I must take this opportunity of thanking the surgeons whose cases are included in this series for their indulgent coöperation, more especially Mr. R. C. Alexander and Mr. R. S. Melville, for whom the bulk of this work was done.

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Hospital Meals by Contract.—During the last three months the meals for the staff of the Holgate Institution, Middlesbrough, have been provided by contract at an average weekly cost of 7*s*. 5¾*d*. per head, as compared with a previous average of 13*s*. It is officially stated that the fare has given complete satisfaction by reason of its greater variety.

HARMALOL IN THE TREATMENT OF PARKINSONISM.

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Lewin,[1] as a result of pharmacological experiments, recommended banisterine, an alkaloid obtained from *Banisteria caapi*, as a remedy in nervous diseases, and reports were later made by Lewin and Schuster[2] and Beringer[3] as to its value in parkinsonism. Later, banisterine was shown to be identical with harmine, an alkaloid obtained from *Peganum harmala*, and reports as to the clinical use of harmine were made by Rustigo,[4] Beringer and Wilmanns,[5] and others. By the end of 1930, a considerable number of clinical reports had been published which generally went to show that harmine favourably influences the rigidity of the muscles in post-encephalitic conditions, but that it has little or no effect either on the tremor or on the mental condition.

The effect of harmine in relieving rigidity of muscles in those conditions was generally ascribed, somewhat vaguely, to an action on the extrapyramidal tracts. Halpern, however, in two interesting papers[6] gave a different explanation. According to his observations, harmine acts in a manner entirely different to that of hyoscine, for whereas the latter has a depressant action on the extrapyramidal tract, harmine stimulates the motor cells of the cerebral cortex. According to this view, apparently, the pathological condition in parkinsonism is due to a stimulation or over-action of the extrapyramidal tracts which is subdued by hyoscine. Harmine leaves these tracts uninfluenced but, by stimulation of the motor cells of the cortex, facilitates the passage of voluntary impulses through the pyramidal tract. This explains several observations, among others the facts that harmine does not relieve tremor, whereas it does produce a curious subjective feeling of "lightness" of the muscles, and that a combination of harmine and hyoscine produce summated benefits because they act differently and on two components concerned in voluntary movement.

Whether Halpern's explanations are right or wrong, they certainly afford a more precise and reasoned explanation of the divergent action of these alkaloids than has previously been given. One of us, in early pharmacological experiments with harmine,[7] had suggested that the convulsant action produced in laboratory animals by this alkaloid is due to a stimulation of the cerebral motor cortex.

Marinesco, Kreindler, and Scheim[8] found that harmine, in normal persons as well as in those suffering from encephalitis, heightens vestibular excitability, and that it tends, though to a less extent than scopolamine, to restore to their normal values the pathological chronaxies of the nerves and muscles in parkinsonism. It is evident that the precise method of action of harmine in parkinsonism cannot yet be regarded as decided. The general opinion of those who have tried it is that it has a definite effect in improving motility. Its effect on the post-encephalitic complex of symptoms is hardly comparable to that of hyoscine or stramonium, and it has been used chiefly to supplement the action of the latter drugs. Some observers—e.g., Hill and Worster-Drought[9]—have found little or no benefit from its use

Gunn and his co-workers have recently investigated some artificial derivatives of harmine and harmaline.[10] They found that, while in all compounds investigated the actions on voluntary and involuntary muscle were similar, there were important differences in their actions on the central nervous system. This was shown especially by the fact that, whereas harmine and harmaline produce clonic convulsions in laboratory mammals, harmol and harmalol (which differ from harmine and harmaline respectively in the substitution of HO for CH_3O group) have no such convulsive effect. It seemed of interest, therefore, to determine whether harmol and harmalol would exert the same type of action in parkinsonism as harmine or harmaline. If, as Halpern suggests, the action of harmine in this condition is due to stimulation of the cerebral motor cortex, then harmol or harmalol ought to be ineffective, unless the latter alkaloids have an action on the central nervous system in man different from that which they display on lower mammals (rats, guinea-pigs, and rabbits).

To obtain evidence on this point we have made a series of observations on the effects of harmalol in cases of parkinsonism following encephalitis lethargica. The cases treated were all patients in West Park Mental Hospital, and we wish to thank Dr. F. L. Golla and Dr. Norcliffe Roberts for affording us every facility for conducting the investigation. For the supply of harmalol hydrochloride we are indebted to Messrs. Boots, Nottingham.

Harmalol hydrochloride is soluble in cold water only to the extent of about 1 per cent. This limited the dose that could conveniently be given by hypodermic injection to about gr. 4/5, which was given as two injections of gr. 2/5 dissolved in 20 c.cm. of water. If given repeatedly by mouth the drug may cause some staining of the teeth.

All the patients were suffering from chronic epidemic encephalitis, and most of them showed severe symptoms of parkinsonism. In attempting to evaluate the effects of harmalol in these cases, we were confronted with difficulties which are familiar to those who have experience in treating this type of disease. Also the dosage to begin with had to be tentative, as there was no previous experience of the use of the drug in man. Practically all the cases had been on full doses of stramonium, and this treatment had to be discontinued until the symptoms had returned and reached a stationary state before the patient was given harmalol. Observations were made on the local and general reactions to the drug; especially records were taken of the pulse-rate and blood pressure as an indication of the safety of the dosage. Gunn and Simonart had shown, in the case of laboratory mammals, that small doses produce a slight rise of blood pressure, and larger doses a fall. As a conspicuous fall of pressure was produced by doses only one-tenth of the lethal dose, there was every reason to suppose that the drug could be pushed with safety so long as there was no marked fall of blood pressure. Experience with harmalol confirmed this anticipation.

Results of Experiments.

The results of the experiments can be stated briefly. There is little to be gained by giving the results of the smaller and tentative doses.

By hypodermic injection.—Fifteen tests were made with doses ranging from gr. 1/10 to gr. 4/5. The smallest of these doses generally produced a slight rise of blood pressure, the largest a fall of not more than 10 mm. Hg, accompanied usually by slowing of the heart-rate by about ten beats per minute.

No pain or local irritation was produced at the site of injection, and no toxic symptoms of any kind were produced. In regard to the nervous condition, the only primary alteration observed was a decreased muscular rigidity. With gr. 4/5, two cases showed no change, three slight relaxation, and two marked relaxation. In no case was the rigidity completely abolished. Cases showing definite decrease of rigidity showed also improved voluntary movement. In no case was the tremor lessened, whatever its type; and we had the impression that the decreased rigidity enabled the tremor to manifest itself more easily in some cases. There was no evidence of euphoria or of improvement in the mental condition. There was no reduction in the sialorrhœa, and sweating was increased in some cases.

The effect on rigidity reached a maximum in about 45 minutes, and began to pass off again in about two hours, though slight improvement lasted as long as 24 hours in some cases.

By oral administration.—No nausea or vomiting and no toxic symptoms were produced by any dose up to grs. 12, the largest given. The effects generally resembled those produced by hypodermic injection with the following differences. No marked effects were produced by doses less than about grs. 8. With doses of grs. 8–12 there was usually no significant change in blood pressure, sometimes there occurred a rise, sometimes a fall of blood pressure, in neither case of over 10 mm. Hg. With doses of about grs. 10 the effects were similar to those previously described as occurring after hypodermic administration. The only positive effect was the diminution in the rigidity of the muscles. The action began to pass off usually in three to four hours, though in some cases slight effects were distinguishable up to 12 hours or even longer.

In a few cases in which harmalol was given to patients already receiving stramonium, a slight further relaxation of muscles occurred over and above that due to stramonium.

So far as these preliminary observations go, they tend to suggest that harmalol produces much the same effect as harmine in relieving the muscular rigidity of parkinsonism. In a few cases in which harmine and harmalol were compared in the same patient, we failed to find any material difference between the two alkaloids. The fact that harmalol is devoid of stimulant action on the cerebral cortex of laboratory mammals, and nevertheless has an effect on the muscular rigidity of parkinsonism similar to that of harmine, rather throws doubt on the explanation that the action of these alkaloids in man is due to stimulation of the cerebral motor cortex, though this would have afforded a feasible explanation of the action of harmine itself. Our observations are too slender to admit of profitable conjectures as to their seat of action.

Though harmalol, like harmine, seems to have a definite effect in relieving the rigidity of the muscles, with consequent improvement in voluntary movements, it produces no general alleviation of the symptoms-complex of parkinsonism at all comparable with that produced by hyoscine.

Conclusions.

Harmalol hydrochloride, in doses of gr. 4/5 hypodermically or grs. 8–12 by mouth, has a slight but definite effect in relieving muscular rigidity in parkinsonism. It has no beneficial effect on the tremor or on the mental condition and does not

(*Continued at foot of opposite page.*)

CLINICAL AND LABORATORY NOTES

CASE OF ACUTE ASEPTIC MENINGITIS.

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The recent publication by Dr. J. H. Gibbens of some cases of acute aseptic meningitis in The Lancet (July 4th, p. 12) encourages us to describe an example of this condition in an adult. Dr. Gibbens's patients were all under the age of 12.

A male, aged 34, in previous excellent health, was admitted to the Hampstead General Hospital on July 8th, 1931, complaining of headache and vomiting. His illness began suddenly on June 30th with malaise, severe headache, and pains in the limbs. His doctor had observed that pyrexia, ranging from 101° to 103° F., was present for the first three days of the illness, and that after two days of general improvement all his symptoms recurred with increased severity, when for the first time complaint was made of stiffness in the neck and vomiting. Lumbar puncture had been performed; the cerebro-spinal fluid not under increased pressure was opalescent, containing an excess of protein and capable of a slight reduction of Fehling's solution. The total cell count was 280 per c.mm., with a differential proportion of 40 per cent. polymorphs, 30 per cent. small mononuclears, and 30 per cent. endothelials. Some coliform bacilli—presumably a contamination—were found on culture.

On admission, although obviously very ill, he was fully conscious with unimpaired cerebration. The temperature was 98·8° F., cardiac-rate 56, respirations 20. Physical signs were inconspicuous; all the cranial nerves were unaffected. Although the muscles at the back of the neck were rigid, Kernig's sign was not elicited. The cerebro-spinal fluid was not under pressure and exhibited the following characters: Appearance, turbid with a fine clot; total cell count 280 per c.mm., polymorphs 17 per cent., lymphocytes 83 per cent.; total protein, 160 mg. per cent.; globulin increased; sugar within normal limits; chlorides, 700 mg. per cent.; Wassermann reaction negative; no organisms identified in smear or culture.

During the two days following admission, vomiting persisted but terminated abruptly, although headache and stiffness of the neck continued. Bradycardia and apyrexia were maintained. Examination of the blood showed the presence of slight secondary anæmia. The total leucocytes were 16,000 per c.mm., of which 78 per cent. were polymorphs. Improvement began and steadily continued, and within ten days all symptoms had disappeared. By this time the cerebro-spinal fluid, still turbid, contained 250 white cells per c.mm., 90 per cent. of which were lymphocytes. The total protein was now 120 mg. per cent., chlorides were 715 mg. per cent. Cultures sterile. A week later the fluid was clear, colourless, with eight cells per c.mm., all lymphocytes. Total protein 95 mg. per cent., globulin very slightly increased. Sugar within normal limits, chlorides 720 mg. per cent. Lange's colloidal gold curve 0 0 0 0 0 0 0 0 0 0. A final lumbar puncture was performed on August 12th. The cerebro-spinal fluid was clear and colourless without coagulum. Eight cells—all lymphocytes—per c.mm. Total protein 0·035 mg. per cent. Globulin a faint trace. Sugar normal. Chlorides 690 mg. per cent.

It should be added that the Wassermann reaction in the blood was negative, Mantoux's test was negative, and that a skiagram of the skull exhibited no abnormality to suggest disease of the sinuses.

(*Continued from previous page.*)

relieve salivation. In these doses it is well tolerated. It does not produce anything like so complete a relief of all the symptoms as is effected by the alkaloids of the hyoscine group, but may be of some value as an adjuvant to these, in the treatment of parkinsonism.

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CARCINOMA OF THE CERVIX

WITH TWIN PREGNANCY AND NORMAL DELIVERY.

By J. L. Blonstein, M.R.C.S. Eng.

Cases of carcinoma of the cervix and pregnancy with delivery per vias naturales have been recorded. Usually these have been diagnosed before delivery, and if not terminated by Cæsarean hysterectomy, there has been severe post-partum hæmorrhage.

In 1913 H. B. Mylvaganam[1] reported a case of advanced carcinoma of the cervix uteri containing twins, treated by vaginal hysterectomy at the fifth month. In this case pregnancy was not diagnosed, the fœtuses only being discovered at operation. The indication for operation was the severe hæmorrhages. In 1918 B. P. Watson[2] reported a case of cancer of the cervix complicating triplet pregnancy, treated by Cæsarean Wertheim hysterectomy at the fifth month. Pregnancy was diagnosed, but from the second month hæmorrhages and foul vaginal discharge were present.

The following case appears to be unique.

I was called in by a midwife to Mrs. A., aged 38, a 2-para, on account of a prolonged first stage. The history of the pregnancy was uneventful except for a certain amount of low backache. There was no history of offensive discharge or bleeding. The last menstrual period had commenced on Sept. 23rd, 1930, had lasted five days, and labour had begun on April 27th, 1931. There had been a show, but the pains were slight and infrequent. On examination the abdomen was seen to be very pendulous. Twins were easily diagnosed. On vaginal examination the os was the size of half a crown. It was noticed that the cervix was hard and irregular in outline. No the necessary certificate on a prescribed form, and this would then be counter-signed by the official witness. This certificate, which would state the fatal disease from which the deceased had suffered, and would specify euthanasia as the mode of death, would take the place of the ordinary medical certificate for purposes of registration of death.

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[1] The Lancet, 1913, ii., 930.

[2] Amer. Jour. Obst., 1918, lxxviii., 347.

At first, no doubt, the number of persons who would take advantage of the Act would not be large, possibly very small. By degrees, however, as people became accustomed to the idea and prejudice broke down, and as public opinion came to regard euthanasia as a courageous, rational, and often very altruistic course, the numbers would increase.

OBJECTIONS MET.

Possible objections to the legalising of voluntary euthanasia may be classified as (1) ethical; (2) legal; (3) practical.

The ethical objection Dr. Millard meets by sheltering himself behind Canon Peter Green who, in his book entitled "The Problem of Right Living," published this year, refers to a man's inherent right to terminate his own life when suffering from incurable and painful diseases, and concludes:

> "I have found it impossible to discover any really conclusive argument against suicide under due restrictions."

As regards possible legal objections, there is the question of possible abuse—e.g., by friends anxious for selfish reasons to be rid of a troublesome patient. Subject however to the conditions and precautions indicated, it is difficult, he says, to see how the proposed arrangement could really be abused. Certain contingencies would need to be provided for—e.g., the matter of life insurance policies. A clause in the Act would deal with existing policies, allowing insurance societies to deduct a discount of, say, 5 per cent., for, say, three months, from the sum assured; but in policies taken out after the passing of the Act most societies would doubtless insert a clause agreeing to make no difference in the sum assured in case death was brought about by legalised euthanasia. For, after all, a permit could only be obtained where a man was suffering from a fatal disease. Moreover, even at present, suicide "whilst temporarily insane," the usual verdict, does not affect life assurance.

In practice the procedure to be gone through in order to obtain a permit might seem so complicated, and be so expensive, that no one would trouble to take advantage of the Act. Dr. Millard does not think that a man faced with the grim alternatives, assuming that he felt there was no moral or legal objection, would be so deterred. Even admitting that some obstacle would exist, that very fact would itself be some security against euthanasia being resorted to too readily. Expense would prevent very poor persons from taking advantage of the Act unless some voluntary fund were available. Wealthy philanthropists, who themselves took advantage of the Act, might bequeath substantial sums for this purpose as a mark of gratitude and sympathy. Opposition of friends would by degrees be overcome, and euthanasia come to be regarded as a reasonable and proper course. In many, perhaps in most cases, the motive actuating an applicant for euthanasia would not be merely to escape physical suffering for himself, but even more to shorten and relieve the physical and mental strain which a long drawn-out painful illness entails upon those nearest and dearest to him. Viewed from this standpoint, euthanasia would come to be regarded as an act of altruism.

ROYAL SOCIETY OF MEDICINE.

SECTIONS OF OBSTETRICS, MEDICINE, AND PSYCHIATRY.

ON Oct. 16th these sections met jointly, with Mr. BRIGHT BANISTER in the chair, to discuss the medical indications for

Premature Termination of Pregnancy.

Dr. L. S. T. BURRELL, speaking first on tuberculosis, said that one of the great problems of eugenics was whether or not a consumptive mother should have children. If the pulmonary disease in her had been completely arrested, there was no medical reason why she should not have a family; this was the safer to say because most people had at some part of their lives been infected with tuberculosis. But if the disease was merely quiescent, and so liable at any time to again become active, it was an open question whether she should have children. A child born of tuberculous parents was certainly handicapped; it was exposed to risk of infection, and was the victim of the drawbacks associated with a tuberculous household, one of them being the frequent absence from home of the diseased parents at a sanatorium, another the forbidding of such a child to visit some households. Still, the medical man could not advise abortion on account of danger to the child; he must concentrate his attention on the tuberculous mother. For this purpose, three stages of the disease must be considered.

In the *acute* or *steadily progressive* case, pregnancy should be terminated if the child was not viable. If it was viable, the possibility of inducing premature labour should be considered. Usually, pregnancy did not aggravate pulmonary tuberculosis, but parturition definitely did. If cases were seen before the fifth month of pregnancy, the process should be terminated, in this class of case, at once.

The second was the *fibro-caseous* type. Such a patient was holding her own, but as a result of undue strain was liable to setbacks. This was the stage of most patients who had left a sanatorium. Many consolidated this stage into cure, while others steadily went downhill; others, again, kept fairly well, with periods of relapse. For women in this unstable condition he advocated termination of the pregnancy if the patient was seen before the end of the fourth month; but if she was seen later, abortion tended to cause a flare-up in the tuberculous condition, almost as severely as did a normal labour. Thus it was reasonable to allow the pregnancy in such cases to proceed to term, or nearly to term.

In the *chronic fibroid* case the disease, though not completely arrested, was not spreading. Temperature and pulse were normal, and there were no toxic symptoms even when a fairly active life was led. In these women parturition did not usually cause an acute flare-up of the disease, and pregnancy could be safely allowed to take its course.

NON-TUBERCULOUS PULMONARY CONDITIONS.

In most non-tuberculous cases the only reason for ending pregnancy was heart failure—e.g., in chronic bronchitis and emphysema. In carcinoma of lung, actinomycosis, or other gross non-tuberculous conditions, a decision about the pregnancy must rest on the lines of ordinary medicine. Even in desperate cases of asthma it was very seldom necessary to interfere if the woman was well between attacks. Most asthma sufferers were free from symptoms whilst bearing their child, and many asthmatic mothers had healthy children and were themselves improved by pregnancy and parturition.

HEART DISEASE.

Dr. T. F. COTTON said he thought there was general agreement among physicians and obstetricians that the chief cause of heart failure in pregnant women with heart disease was a mechanical one. Infections, as in heart disease apart from pregnancy, might be an important factor in cardiac breakdown. In all patients with structural heart disease the indications for treatment were based on forecasts of the course of the disease. In the congestive type the heart was unable to maintain the circulation, and the extra work thrust upon it by pregnancy was beyond its powers—even, in some cases, under sound treatment. If such a degree of heart failure could be anticipated, every effort should be made either to avoid pregnancy, or to terminate it in not later than the third month. This congestive failure was likely to develop during pregnancy when the heart was enlarged and the auricles were fibrillating. When there was congestive heart failure in the later months of pregnancy there was greater risk in interference than in allowing the woman to go to full term. The decision about this rested with the obstetrician. Of late years anxiety about the effect of an anæsthetic in heart disease had diminished. Pregnant women with chronic valvular disease commonly had active rheumatism, and this might lead to heart failure. If so, pregnancy should be terminated before the end of the third month if possible. Bronchitis and other intercurrent infections favoured heart failure symptoms, and so were an additional reason for interference. If there was no rheumatism, nor a history of a previous cardiac breakdown, the immediate prognosis for the pregnant woman was good. Still, the lives of such women would be shortened if they had repeated pregnancies, especially if home conditions did not allow of proper antenatal and maternal care. In the multiparous, therefore, previous heart trouble was a reason for early interference with labour, and so was increasing breathlessness of cardiac origin before pregnancy began. Recently there had been a justifiable tendency to allow more women with heart disease to go to term. He thought that the efficiency of antenatal clinics would be increased if they could be closely linked with the cardiac department of a hospital.

THE OBSTETRIC STANDPOINT.

Prof. BECKWITH WHITEHOUSE (Birmingham) said that the infrequency with which abortion was practised in hospitals showed how distasteful the operation was to most British obstetricians. On the major question of risk to life the indications were fairly clearly defined, but there was some division of opinion about the possible effect of pregnancy on the mother's subsequent health (physical or mental). He had recently tried to gain information from a number of British obstetricians as to the medical reasons for which they had done therapeutic abortion. The result showed that the standards varied considerably. On a five-year basis the total of induced abortions in eight London and provincial hospitals was only 267, or six per institution. In a return of 502 private and hospital patients the therapeutic abortions were 0·6 per cent. Still, he was convinced that abortion was being practised to-day on grounds not usually regarded as adequate; one of the reasons was rapidly repeated pregnancies. In cases brought to his notice the grounds for abortion included very recent pregnancy, general debility with loss of weight, previous operations on the abdomen, recent Cæsarean section, prolapse of the pelvic viscera, and previous operations on the pelvic floor for genital prolapse. In a number of cases in which he had declined to operate, he found that others had later induced the premature labour asked for. He had several times been asked by surgical colleagues to terminate pregnancy because of coexisting malignant disease, especially carcinoma of the breast. He had always agreed to do this, for he held that pregnancy stimulated the malignant cells. He considered that the ovary, through the corpus luteum, produced a tissue-growth factor. Coexisting disease of uterus or ovaries could rarely be regarded as an indication for terminating the pregnancy. Mental disease or nervous lesions gave rise to many difficulties, for they involved eugenic as well as therapeutic principles. In 22 cases of which he had particulars abortion was induced for epilepsy, or insanity, or puerperal mania, or suicidal tendencies, post-encephalitic conditions, or even bad mental family history. He himself had never performed abortion for epilepsy, puerperal mania, or supposed suicidal tendencies.

Mr. EARDLEY HOLLAND said that as encroachment on the cardiac reserve was always demonstrable in healthy pregnant women, it followed that pregnancy favoured decompensation in cardiac disease. The demands of the fœtus for glycogen were great, and a pregnant woman was liable easily to get into a state of glycogen starvation. The renal threshold for sugar was lowered during pregnancy, so that glycosuria was found at one time or another in a very large proportion of cases. These alterations in carbohydrate metabolism must have significance where diabetes mellitus complicated pregnancy, and this enabled one to understand the danger attending an association of the two states. On the pregnant woman there was a considerable drain for calcium so as to meet the demands of the growing fœtus and the later requirements of lactation. Recent work had indicated that an adequate supply of calcium might be of great importance in protecting a woman against pregnancy toxæmias. Many of the ductless glands underwent activation changes during pregnancy; increased thyroid activity was, no doubt, associated with the increased metabolism of the pregnant woman, whose basal metabolic rate during the later months was about 30 per cent. above normal. The pituitary gland might double in size during pregnancy, the enlargement being confined to the anterior lobe.

It seemed impossible, Mr. Holland said, to give a list of diseases in association with which a continuation of pregnancy was undesirable; one must rely on the general routine of experience. Apart from the toxæmias of pregnancy, the medical indications for induction did not arise at all often. In the later stages of pregnancy the principle was to treat the disease and neglect the pregnancy; this applied specially to pneumonia, because of the extra strain this induced. In his own series cardiac disease, chronic nephritis, and pulmonary tuberculosis accounted for 65 per cent. of the cases requiring abortion. What could be called the doubtful indications comprised a heterogeneous collection of combined medical, social, and personal states which defied classification. But there was a very wide gulf between illegal abortion and therapeutic abortion undertaken for doubtful indications.

THE MENTAL SIDE.

Dr. **Henry Yellowlees** feared there was a tendency to overlook the psychiatric aspect of abortion; yet this was a medical aspect, and more really so than any others, since it included the patient as a whole, as a living organism in a certain environment, with all its involved relationships. Yet psychiatry could not supply a list of indications for terminating a pregnancy. Its traditional attitude, indeed, on this matter was very conservative. Psychiatry appeared to be only too ready not only to coöperate with general medicine and obstetrics, but to hand over the responsibility of the casting vote to these branches. In the correctness of its position, traditional psychiatry had become even more royalist than the King. In 1927 Dr. Watts Eden, speaking at Nottingham, declared, "I am prepared to defend the view that it may at times be right to terminate pregnancy even if the mother is not suffering from any condition which could be called a disease"—and by this last word probably was meant mental disorder too. Few traditional psychiatrists would go as far as that. Dr. Yellowlees agreed with Dr. Percy Smith that the psychiatric conditions in a case were always important, sometimes all-important. But no rule could be laid down for psychiatry; each factor must be considered by itself and in relation to the other factors. The late Dr. R. H. Cole had declared that the profession was without sufficient eugenic data to allow the possible future of the child to enter into calculations on the production or otherwise of abortion, but Dr. Yellowlees questioned whether this was always true.

Dr. G. W. B. **James** submitted what he termed a mild criticism of traditional views. The first function of a psychiatrist called to see an expectant mother who was showing mental symptoms was to diagnose her disorder with precision. This was not always easy, but it was possible at once to decide whether the symptoms were those resulting from organic disease of the nervous system, or a confusion due to toxic causes, a psychosis, a neurosis, or a psychoneurosis. In the presence of the last two, interference with the pregnancy was seldom justifiable, though he would make an occasional exception in the presence of a severe anxiety state or an obsessional neurosis. Speaking generally, the attitude of the psychiatrist towards ending the pregnancy should be to preserve life, to alleviate or cure serious mental illness, and to prevent chronic mental ill-health. Whenever possible, the mother showing mental symptoms should at once be removed from home surroundings, and, for purposes of diagnosis and treatment, should be observed under hospital conditions. This, however, was mostly difficult for the poorer class of woman. He was firmly of opinion that maternity hospitals, and general hospitals with maternity wards, should have set apart a room with one or two beds to which pregnant women with mental symptoms could be admitted for observation. Surprisingly often mental symptoms yielded to early rest and care. The weekly interview in an outpatient department did not provide sufficiently accurate data, and little notice could be taken of the account of anxious relatives. Loss of weight and of sleep, and particularly of what he preferred to call "insight," were very important to watch. In the event of loss of all those three factors, the physica [illegible]on of the termination of the pregnancy—or painful il [illegible]re labour if the child was viable—must be to him. [illegible]onsidered. It was possible to watch events would come to be re [illegible]t the psychotic condition was given an opportunity to establish itself. Psychiatry insisted on early treatment, but practice was not always in accord. Often the termination of the pregnancy cut short the precipitating cause of the mental upset. Early mental breakdown appeared to be commonest in women over 30 years of age who were then pregnant for the first time, in women pregnant for the third time, and in those who had had mental illness in previous pregnancies. Pregnancy should not be terminated for other than medical reasons, and of these one of the gravest was psychic disorder. Eugenic considerations should not weigh with the psychiatrist, and a bad family history alone could never justify abortion. In closing, Dr. James asked this question: "Do we approach these cases without some faint stirring of the old attitude to child-bearing which caused nearly the whole of the medical profession to oppose the use of anæsthetics in labour?"

Dr. **Crighton Bramwell** (Manchester) said he had recently reported 82 consecutive cases of heart disease in pregnancy in which there were five deaths, and four of the five were patients who had congestive heart failure or auricular fibrillation. The other fatality was from pulmonary embolism. His view was that taking congestive heart failure and fibrillation as indications for terminating pregnancy, if one saw the case in the first three months after conception abortion should always be performed. If the case was not seen until later, the pregnancy should be allowed to proceed, and it was for the obstetrician to decide on the easiest method of accomplishing this. If Cæsarean section were chosen, sterilisation could be carried out at the same time. It was most important that the heart failure should be treated first.

Dr. W. A. **Potts** (Birmingham) spoke of the hospital at West Bromwich where women with mental symptoms who were pregnant were transferred to the gynæcological ward for treatment, and maternity cases showing mental symptoms could be moved to the mental observation wards without certification. He associated himself with the views held by Dr. T. C. Graves and his staff at the Birmingham Mental Hospital—namely, that where there were mental symptoms, in those cases some focus of infection could be found. He suggested that the question of the termination of the pregnancy should be decided by the effect upon the mother not of the disease but of the treatment which might be carried out; what were the foci of infection, could they be dealt with, and, if so, what would be the effect on the mother? When a patient was obviously unhealthy and yet no focus of infection was disclosed to examination, it was well to resort to non-specific therapy, such as T.A.B. or other intestinal vaccines; in pregnancy it was of great value to use antiscarlatinal serum.

Dr. **Percy Smith**, at the Chairman's invitation, reiterated his views already quoted, adding that in respect of mental conditions one was always conscious of the law behind one. The willingness of the patient to go away for treatment must always be a factor.

Dr. B. **Dunlop** thought that most ordinary people would smile at the attitude of the profession on this subject—namely, not to interfere except on purely medical grounds. He had been surprised at the way in which eugenic considerations had been belittled in the discussion. If the children were likely to be defective, those who refused to terminate the pregnancy could be held to ensure the birth of a considerable number of defective children.

Dr. Leonard Findlay said that considerations relating to the child had come but little into the discussion—less than they deserved. If a child stayed with a phthisical mother, it was sure to be infected. Deaf-mutism, hæmophilia, and the myopathies should always be considered from the point of view of the progeny. Mentally deficient mothers were not usually very prolific, and it was very rare to see more than one mental defect in a family.

Dr. E. Stolkind, speaking of infective foci, uttered a protest against wholesale tooth extraction, which seemed a panacea for so many ills. In the case of tubercle, it was almost impossible to say whether the disease was active or quiescent, and if quiescent, when it might again be active.

Prof. Whitehouse and Dr. Yellowlees very briefly replied.

MEDICAL SOCIETY OF INDIVIDUAL PSYCHOLOGY.

At the inaugural meeting of the session, held on Oct. 15th at 11, Chandos-street, London, the incoming president, Dr. W. Langdon Brown, gave an address entitled

The Return to Æsculapius.

A striking feature of twentieth-century medicine is, he said, the return to the cult of Æsculapius—namely, cleanliness, fresh air, suggestion, dream analysis, and psychological explanation. The history of that cult is the history of therapeutics; organotherapy, for example, sprang from crude sympathetic magic, the savage warrior ate the heart of his foe to acquire his bravery and strength. Earlier Greek physicians had striven after a reasoned procedure, but they were influenced by a whole system of magical, or at least non-rational, pharmacy and medicine inherited from a remoter ancestry. While much of the temple ritual might now seem like quackery, he preferred to call it psychotherapy adapted to the need of the times. When ill-health weakens the control of the more recently acquired reason, and the more primitive emotions are allowed freer play, the same craving for magical cures is still seen to-day. The common phrase, "it worked like magic," expresses this deep if unconscious desire. The significance of the return to Æsculapius consists in the recognition of the importance, not only of the disease, but also of the patient who has the disease; the old adage, "examine the whole of your patient," thus assumes a new meaning. Future progress in medicine will come from a combined attack on the physical and on the psychological side. He referred to the great loss which medicine had sustained in the death of W. H. H. Rivers, whose biological training and shrewd insight into the mentality of the savage equipped him particularly well to lay the foundation of a sane psychotherapy.

Dr. Langdon Brown then passed on to consider in some detail the part played by the sympathetic nervous system in the bodily economy, indicating how it came about that the psychoneuroses may express themselves at any one of the three great levels of the nervous system—on the psychical level as obsessions, on the sensori-motor level as paralysis, contracture, tic, or anæsthesia, on the visceral level as various vegetative neuroses. To the practising physician the realistic psychology of Adler made, he said, an increasing appeal. The real struggle for existence is connected with that incessant urge, inherent in every living cell, to assert itself so far as external circumstances permit. In the psychoneurotically predisposed person frustration of this power motive favours retreat into phantasy. He illustrated some of these features by an analysis of the life and writings of D. H. Lawrence, whose great literary gifts he considered had been fatally crippled by his psychoneurosis.

Important as were the contributions made to medical science by materialistic medicine, it now remained for psychology to coöperate with, and so to enrich and complete, the work begun by its predecessors

PADDINGTON MEDICAL SOCIETY.

At a meeting of this society on Oct. 13th, Dr. G. de Swietochowski, the President, took the chair. A discussion on

Vertigo

was opened by Dr. Wilfred Harris. The sensory stimuli on which normal people depended could, he said, be dispensed with—as they were, for instance, in deaf mutes, who did not suffer from giddiness. He classified the causes of vertigo as aural, ocular, gastro-intestinal, circulatory, toxic, febrile, and cerebral—the last class including migraine and epilepsy. Height vertigo was allied to neurasthenic vertigo and was due to the suggestion of steep descent and falling. Any sudden cerebral lesion might cause vertigo, and toxins acted partly through the nervous system. Train sickness and giddiness from a swaying floor or from fear of loss of balance all acted by disturbance of afferent sensations. The most intense vertigo was due to disturbance of the vestibular nerve. The vestibular syndrome included nystagmus, vertigo, and vomiting, and sometimes facial palsy and nerve-deafness; this syndrome might be seen in the course of alcohol injections for trigeminal neuralgia if some of the alcohol overflowed into the eighth nerve. Slowly developing lesions caused milder giddiness, but sudden lesions of the cerebellum and its peduncles produced most intense vertigo, as in thrombosis of the posterior inferior cerebellar artery in arterio-sclerosis or syphilis. The fillet might be involved, causing crossed trunk and limb anæsthesia and facial anæsthesia on the same side. The nystagmus, conjugate deviation, and forced movements were on the side of the lesion. The patient might also suffer from hiccup, and severe pain in the analgesic face, and might have to learn to walk all over again when the lesion began to recover—usually after about two months. For weeks he would not be able even to sit up because of the vertigo. One patient had said that she seemed to be in the air, and the cars in the street to be in the air; another that the floor and ceiling were inverted, so that he feared to fall on to the ceiling, while the lamp hung from the floor. Naturally, the resulting vertigo was terrible.

AURAL VERTIGO.

Mr. M. E. Vlasto described the labyrinthine anatomy, and said that cases of vertigo came to the otologist either with obvious ear disease or because a physician had been unable to find a cause. A violent blow on the ear might cause vertigo, as would also a large plug of wax, a rise of blood pressure in the posterior cranial fossa transmitted by the lymphatic sac of the labyrinth, chronic labyrinthitis, and hypersecretion of intralabyrinthine fluid due to vasomotor disturbances. A fall in intralabyrinthine pressure, as in low blood pressure, or traumatic liberation of the fluid in the labyrinth, embolism of the internal auditory artery or spasm, might produce vertigo. Other causes were pressure of a tumour or bony growth, toxic influences, and physiological causes like sea- and air-sickness. All these causes produced vertigo by interfering with the "harmonic" state of the two labyrinths. Examination must obviously be exhaustive. The history must begin by making sure that the vertigo was a true one; the essence of vertigo was displacement. Urine must be tested, blood pressure measured, and the ears carefully investigated. Deafness associated with vertigo suggested lesion of the labyrinth. Otoscopy revealed the condition of the meatus, drum, and Eustachian tubes. The function of the labyrinth should be determined, and evidence must be sought for any difference of tone between the muscles of the two sides of the body. The second group of tests was that producing artificial stimulation of the labyrinth. The most important associated symptom of vertigo was nystagmus—the slow deviation being towards the side of affected tonus. The labyrinthine component was the slow one; the quick return was central and not peripheral. In aural suppuration with early serous labyrinthitis the quick component of the nystagmus might for a brief period be towards the affected side. Romberg's test should be noted; the falling and deviation would be towards the side of the slow component of the nystagmus.

The treatment of vertigo was the treatment of the underlying cause. A common cause was malfunction of the Eustachian tube, and inflation or correction of nasal obstruction would clear it up. The cold caloric test showed whether or not the labyrinth was infected, and whether a radical mastoid operation would save the patient. For the "dead" suppurative labyrinth some otologists advocated opening and drainage; others preferred the radical mastoid procedure.

OCULAR VERTIGO.

Mr. F. A. Juler included in the term "vertigo" discomfort in the eyes such as to cause a feeling of giddiness or dizziness. Causes included defective vision; ocular palsies with diplopia and false localisation; muscular imbalance; and incorrect centring of glasses. The mere effort to overcome a blurred image might cause giddiness in conditions of general ill-health and fatigue. Remarkable relief might be given by a quarter of a dioptre cylinder, especially if the astigmatism were "against the rule." Ocular palsies might cause vertigo by double vision, false orientation of the second image, and the apparent movement of objects. It was worse when the patient had only one good eye, and was cured by closing the affected eye. In mild cases there might be no diplopia, but the blurring and confusion might cause giddiness. The diagnosis was often difficult; the causes of ocular palsy included infranuclear lesions due to tabes, disseminated sclerosis, and peripheral neurites, from chill, rheumatism, and diabetes; the nerves might be nipped by neoplasm, periostitis or hæmorrhage; the third nerve might be partly involved only at the base of the brain in, for instance, meningitic exudates.

Heterophoria might cause giddiness, especially if the patient was out of tone. In marked cases there was considerable discomfort, especially if the tendency to deviation were vertical. Prisms would give great relief. Careful tenotomy might well be considered, as prisms were heavy to wear.

Patients wearing unfamiliar or unsuitable spectacles often felt giddy. It was most important that the optical centres should be in the centre line of the patient's vision, especially for those with oblique astigmatism. Toric lenses would help. Fortunately, most eyes seemed able to overcome the difficulties by patience and perseverance. Some patients felt that the floor seen through their glasses was sloping, and this might make them giddy. They were usually astigmatics whose cylinders were not quite at the right angle.

DISCUSSION.

The President emphasised the magnitude of the problem involved in giving a quick diagnosis of and prescription for vertigo, and mentioned the psychological type of vertigo.

Dr. Alexander Baldie said that a general practitioner spent most of his time with three symptoms: headaches, rheumatic pain, and vertigo. Most of the vertigos were fleeting; the patient came for some obvious physical derangement, often remote from the vertigo. He asked whether physical fatigue and excessive function of eye, ear, and cortex might not produce giddiness. Numbers of cases had occurred during the war, apparently due to pure fatigue. Unconscious memories and associations might also play a part.

Dr. T. P. Fyans mentioned the vertigo of the menopause which seemed to have no cause other than disorder of glandular secretion.

Dr. Saul Crown said that the busy practitioner had to take any obvious cause that presented: adequate investigation was difficult in a short time. Many attacks did pass off in a few days under rhubarb, gentian, and bromide. In the arteriosclerotic group the vertigo was usually a sign of approaching cerebral trouble and treatment was difficult.

Dr. J. A. Cohen agreed that most of the patients complaining of "giddiness" were not suffering from vertigo in the sense that objects moved. He quoted two of his cases, in which objects had definitely moved; the first had been traced to pus in the right antrum after an otologist, an oculist, and a neurologist had reported that they could find nothing wrong; the second had lost the vertigo when constipation had been cured.

The President asked whether even a small amount of wax lying against the drum might not cause vertigo: it was known that a foreign body might. A certain psychological school regarded repressed sexual desires as a cause of intense vertigo.

Dr. Harris, in reply, said that "psychic" vertigo was one of the most abstruse forms both to diagnose and treat. He agreed that "unfitness" was a common cause. Cases of sudden falling, as in narcolepsy, might perhaps be due to vertigo. He quoted a case of Erb's juvenile muscular atrophy which had begun with vertigo. It would be a dreadful thing if vertigo never got well unless accurately diagnosed.

Mr. Vlasto, in reply, emphasised his limitation of the term "vertigo" to cases with displacement of the object or of the individual. The cases that got well with simple treatment were not true vertigo. Height "vertigo," menopausal and psychical giddiness were not true vertigo. A plug of wax would not cause it unless there were adhesive processes in the middle ear; wax caused "fullness," a swimming feeling, or a sinking feeling.

Mr. Juler also briefly replied.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.

AT a meeting of this society on Oct. 1st Dr. DUNCAN FORBES, medical officer of health for the borough, delivered his presidential address on the

Acute Infectious Fevers.

As the years pass, he said, acute infectious disease affects our mortality returns less and less. In 1930 the zymotic diseases including all cases of diarrhœa claimed only 66 deaths in Brighton, against 224 in 1890 and 462 in the 'sixties. Typhus, once endemic, had gone with increased cleanliness of the people. We should never have another cholera epidemic in England, not because of improvement in our social conditions, but because our first care now is the bacteriological purity of the water-supply. The enteric fever rate was only 1/25th of what it was 50 years ago. The only serious danger remaining of large outbreaks was during the extension of the underground headings from wells, when chance typhoid carriers by defæcating in the headings might infect the water which was usually pumped unfiltered and unchlorinated direct into the mains. Summer diarrhœa had practically disappeared.

After this brief historical survey Dr. Forbes went on to speak of present-day infections and their control by preventive measures.

SMALL-POX.

Only 31 per cent. of children born in Brighton are now, he said, vaccinated in infancy and the fear of vaccination has been strengthened recently by the occurrence of sleepy sickness following primary vaccination, usually after some 11 or 12 days. Really its occurrence should encourage vaccination in infancy, as primary vaccination in the first six months of life is not followed by encephalitis, and protects against attack following vaccination in later life during scare periods. The chief danger is from the primary vaccination of school-children and adolescents, who should not be vaccinated unless they have been in actual contact with small-pox, when two marks with a minimum of trauma and of multiple scarring and cross-hatching, should be preferred. It is fortunate that whilst encephalitis lethargica is often followed by nervous disturbances, permanently invaliding the patient and rendering institutional treatment necessary, parkinsonism and permanent paralysis rarely follow post-vaccinal encephalitis, complete recovery being the rule. Histologically encephalitis lethargica and encephalitis post infection are different diseases. Why nervous symptoms should now follow vaccination is not known. Passage through rabbits does enhance the virulence of the lymph and it is suggested that this variation in procedure is a possible cause, but lymph so prepared had been in use for years before the appearance of nervous sequelæ.

Granting the occurrence of encephalitis following vaccination it is difficult to understand on what grounds the Ministry of Health allowed thorough vaccination for infants requiring four marks with a combined scar area of half a square inch to be abandoned by public vaccinators as infants under six months practically never suffer from encephalitis following vaccination, and when well vaccinated gain immunity for at least 10 years and a modified attack throughout life. Under the present method, vaccinated infants (only 40 per cent. are now vaccinated) have immunity from attack up to 5 years and a relatively slight modification in the severity of attack thereafter. Because of the absence of compulsory vaccination of all infants and by the reduction of the thoroughness of vaccination, I am convinced that our present system has ceased to be of appreciable value as a public health measure. Theoretically light vaccination in infancy followed by light vaccination at 8 and 16 is excellent, but without compulsion the later vaccinations will not be carried out on a sufficient scale to influence future epidemics On these grounds I recently advised my council that the heavy cost of vaccination as at present carried out was not worth while, and that the system should be replaced by an offer of free vaccination and immunisation against diphtheria at convenient centres on an entirely voluntary basis.

During scare periods, vaccination in one insertion with a minimum of trauma is to be preferred, except perhaps for actual contacts, when two marks should be made in case one fails to take. Many more persons would submit to mild vaccination had they not seen or experienced the results of over-zealous vaccinators. With regard to the mild type of small-pox now endemic in England some advocate a relaxation of precautionary measures, as they hold that so mild a disease is not worth troubling about. The speaker believes that if there is no relaxation in our endeavour to control this disease it can be stamped out.

MEASLES.

Practically everyone, Dr. Forbes said, contracts this disease sooner or later. As measles is dangerous in the first few years of life it is best to delay the attack to the fifth year and to summer weather, but otherwise not to attempt to delay the spread of the disease as the sooner after 5 that healthy children get it over the better. I have known a mother to contract measles whilst nursing her children, adolescents laid up with measles just before important examinations, business men losing three weeks' work and suffering severely; all of whom regretted that they had not had measles when at school. Measles, after 5, should be regarded as a vaccination in the healthy child until a method of active immunisation is discovered or until attenuation of attack by the use of human serum is practicable on a large scale.

The Board of Education do not advise school closure as this, after the first crop of measles, does not prevent but only delays the spread of the epidemic. Schools should be closed only if closure can be used to delay the spread from the cold weather of January and February to the later spring months; for such a purpose closure should be kept in mind as a useful measure. Whilst objecting to school closure the Board advise the exclusion of contacts from infants' departments. This action leads to these young children playing in and about their homes with children under school age and to this extent is harmful. If the contacts were allowed to continue at school they could do no harm as all the non-immunes are in any case, and quite apart from contacts, infected within the next few weeks, in three or four successive crops according to the size of the department. The only advantage of the exclusion of contacts is that it gives the impression to the public that something is being done and is popular with the man in the street. I think it unfortunate that this attitude is encouraged by the Board of Education and at times by general practitioners who on seeing a case of measles, although without any knowledge of the progress of the epidemic, order all the other children to be kept away from school, thereby confusing our work.

Measles and whooping-cough constitute a great danger even in well-conducted creches. Admission to these should be limited to children whose mothers have to go out to work. The nursery school is not so dangerous, as at the age of 3 the high mortalities have passed. In Brighton, judging by the last 26 years, diarrhœa is most dangerous in the first quarter of life, bronchitis in the first six months, and whooping-cough throughout the year. The infant seems to be more or less immune to measles in the first six months of life and the same holds in large measure for diphtheria (as shown by the Dick test), immunity being rapidly lost after the sixth month.

DIPHTHERIA.

If every infant were immunised with toxoid-antitoxin there need be no deaths from diphtheria, the disease which, considering the fall in the birth-rate and the smaller susceptible population, shows little fall in incidence and mortality. A number of homes for children in Brighton have been protected, and since that time, although an odd case of diphtheria has been reported, I have had no anxiety as to the child attacked or the spread of the disease. Apart from these residential schools and homes, although protection is offered to all children, only a few parents have taken advantage of the offer. The only question is whether general immunisation is an economically sound scheme which depends on the danger run by the individual child. So that the risk may be judged I have taken out the figures for Brighton (1474 cases and 122 deaths).

One out of every 13 children born contracts diphtheria before the age of 15.

One out of every 153 children born dies from diphtheria before the age of 15.

The corresponding figures for the 4-year-old are 17 and 218, 7-year-old 29 and 463, 10-year-old 65 and 1424.

Parents should be advised to have their infants protected as they may well happen to be the thirteenth and even the 153rd of the series; in fact it is well worth while protecting any child under 7 years of age. After 7 it should be ascertained if the child is Schick-positive before protection, as over half have acquired immunity by that age.

ISOLATION HOSPITALS.

These were established not for the treatment but for the isolation of infectious disease. The source of infection was believed to be the acute case. So far as control of the spread of disease goes—small-pox excepted—they have been a complete failure. It is now known that epidemic spread is due to carriers. For a mild disease such as scarlet fever it is doubtful if anything is gained by removal to hospital wards. Many of us believe that there the patient becomes saturated with not one but many streptococcal infections and is more apt to develop complications, and we know that from 3 to 5 per cent. of patients discharged from fever wards give rise to further cases. If the patient can be nursed in a room by himself at home, then he certainly should be nursed at home. I do not wish to indicate that the nursing in isolation hospitals is not good, but except each case of scarlet fever is nursed in a separate cubicle by highly trained nurses and cross-infection is avoided, scarlet fever is better nursed at home. Similarly with measles; when cases of this disease are nursed together in hospital, the mortality is appalling, and even the severe case would usually do better in a slum bedroom with the window open than herded with others in hospital wards. The fever hospital is necessary for particular cases which cannot be nursed at home, and is of the greatest value for special treatments. For instance,

(1) If a doctor is called to a child with sore-throat, and is in any doubt as to diphtheria, it is almost criminal for him to take a swab and await the result. What he should do is either to give a prophylactic dose of antitoxin, or to ask for the removal of the child to hospital.

(2) If the doctor attends a case of scarlet fever at home and the patient develops complications, such as acute mastoid, he should ask for its removal for operation. Some doctors, who do midwifery, refuse to visit scarlet fever patients. Of course, he should wear a gown when rubbing up against the patient, he should put the end of his stethoscope into disinfectant and carefully wash his hands at the end of the visit. The great danger is that he becomes a healthy carrier. He should therefore keep as far from the patient as possible, leave the room door open and be in the room for as short a time as possible. If these precautions are taken, the risk is infinitesimal.

(3) Cases of diphtheria, typhoid fever, puerperal fever, cerebro-spinal fever, and ophthalmia neonatorum are best treated in hospital as in all these special treatment is necessary. For instance, in toxic diphtheria, the intravenous injection of antitoxin and the administration of sugar and insulin, in puerperal fever glycerin treatment, in cerebro-spinal fever the intrathecal injection of antitoxin can usually be done satisfactorily only in hospital. There is no objection to the treatment of typhoid fever in general hospitals provided the nurses in attendance on the patient have been protected by T.A.B. vaccine. It is the general experience that resistance to attack is not reduced by any reasonable dose of vaccine, so that there is no risk in giving vaccine to nurses actually in attendance on cases of typhoid. All persons going abroad, even for a cruise in the Mediterranean, should be protected.

DISINFECTION.

With the knowledge that scarlet fever and diphtheria owe their spread chiefly to healthy or apparently healthy carriers, more and more doubt has been thrown on fomites as a cause of spread of infection. The 'nineties were the halcyon years of disinfection. After the removal of scarlet fever patients load after load of all sorts of bedding, clothing, and household goods were carted to the disinfecting station. When a return case occurred there was a hunt for the odd infected articles which had been brought out on the return of the patient from hospital. Because the overlooked case in scarlet fever, and the carrier in diphtheria seemed to explain fully the spread of these diseases, in 1910 disinfection after these diseases was replaced by the washing of sheets and pillow-slips and a spring-clean of the room and for years Brighton was the only town adopting what was considered a hazardous course. Statistics, however, justified the change of procedure. Later, a test was carried out at Willesden on alternate cases, which went to prove that disinfection was valueless. Incidentally the replacement of disinfection by a spring-clean saves the town £400 each year, so that in the last 20 years £8000 has been saved to Brighton in this way.

CORRIGENDA.

LUXUS CONSUMPTION IN OBESITY.—In line 28, col. 1, p. 855, Oct. 17th, read *Hypothyroidism* was not a factor in obesity. Arguing from the observations of Eckstein and Grafe that the luxus consumption produced in the dog by overfeeding was abolished by the removal of the thyroid, Dr. Poulton went on to suggest that the luxus consumption in obesity is due to hyperthyroidism. His view is that hypothyroidism is not the cause of obesity, although it may follow secondarily after long-continued luxus consumption. Dr. Poulton is jointly responsible with Dr. Warner for the view that it is possible to deduce from the basal metabolism of an obese subject that there is a luxus consumption—i.e., that the body tissues are working harder and are producing more heat than in the ordinary individual.

VITALISM.—In the report of Prof. Fraser-Harris's remarks (p. 854), the keyword phrase should read: "Consciousness as cause of *neural* activity and necessary for a *neural* result."

BRITISH MEDICAL ASSOCIATION.

ANNUAL MEETING IN EASTBOURNE.

SECTION OF DERMATOLOGY.

AT the second session Mr. A. DICKSON WRIGHT opened a discussion on

Varicose Ulcer.

He said should the veins become incompetent to return the blood to the heart, stagnation phenomena would result. The region in which ulcers developed varied according to the type of footwear. The name varicose ulcer was not comprehensive enough, because many of the ulcers had other causes, and as the final cause in all cases was gravity, a better name was "gravitational ulcer." In the treatment of all ulcers of the leg constant support was essential. In addition it must be such as not to involve hospitalisation, and it must not be too expensive; it must be simple and within the reach of all medical practitioners, and not too laborious and time-consuming. It was of the utmost importance that the treatment should not be left to out-patient or district nurses. The treatment the speaker adopted[1] was to support the leg with a bandage of elastic sticking-plaster, which could not move when once applied, and could be wound on smoothly in a continuous spiral. In large ulcers skin-grafts were buried in the granulations by insinuation of small implants, by darning in threads of skin, or by injecting suspension of skin in saline; but this made no difference to the method of dressing, the elastic sticking bandage being used just the same. Varicose veins were treated by injections of sodium morrhuate and ligature of large penetrating veins, and venous cysts were treated in some cases. These ligatures were performed in the out-patient department, as the whole treatment must be ambulatory. There were only two contra-indications—associated arterial disease and diabetes. Failure in the treatment was nearly always due to looseness of the bandage. Eczema developed in 5 per cent. of cases, and in about 1 per cent. became generalised. Blisters also developed under the bandage and caused a fair amount of pain and discharge. He never stopped treatment on this account, and had only once had to abandon treatment on account of eczema. Cutting of the bandage into the skin produced linear ulceration and was due to faulty bandaging. It could be avoided by placing longitudinal strips up the legs as splints. Pain was sometimes increased at first by the pressure; to avoid this the speaker said he used sorbo rubber pads, with adhesive on one side, and pressed into the floor of the ulcer. He had also found aspirin powder, sprinkled on the floor of the ulcer, a valuable analgesic whose effect lasted four to seven days.

Mr. Wright gave details of the successful treatment of two difficult cases, and subsequently showed a cinematograph film illustrating his methods of bandaging, skin-grafting, and injecting varicose veins.

Dr. J. H. TWISTON DAVIES said that between April, 1930, and June, 1931, he had treated 98 cases of gravitational ulcer by Mr. Wright's method. Of these, 68 were healed, 11 had been referred to their own doctors and were believed to be cured, 5 had been lost sight of, and 14 were still under treatment. Four of these last would not heal. He had always found that dermatitis could be cured by a second and tighter application of Elastoplast. He had found the same treatment successful for chronic eczema, and in Bazin's disease.

Dr. RUPERT HALLAM congratulated Mr. Wright on the remarkable success of his treatment. It was a common error to think that a large proportion of ulcers of the leg were syphilitic. Of 56 unselected cases of leg ulcers attending his out-patients only five had a positive Wassermann reaction, and antisyphilitic treatment did not improve the ulcers in any of these five cases.

Dr. J. T. INGRAM said he had found small multiple ulcers associated with varicose veins the most difficult to heal. Dr. H. C. SEMON suggested the use of silver foil between the ulcer and the bandage in cases which were slow to heal. Dr. J. O. SUMMERHAYES said that thin metal had been used in India for this purpose. He called attention to the fact that elastoplast bandages were now allowed for panel patients. Dr. H. D. HALDIN-DAVIS had found the occurrence of eczema the chief objection to the use of elastoplast bandages. Drs. R. SILCOCK, H. BROWN, G. B. DOWLING, and others asked questions about the details of his treatment, and Mr. WRIGHT briefly replied.

Thallium and Ringworm.

Dr. INGRAM read a paper on the treatment of ringworm of the scalp by thallium acetate. Thallium treatment, he said, was first introduced in 1927. Thallium was a heavy metal, and was very toxic, especially if given in repeated doses. Of the 24 cases of death following its use, which had been reported, four had received ten times the maximum dose. In 16 cases, which had occurred in an orphanage, there was gross overdosage. In four there was no overdosage but the method of administration was at fault, the thallium being given in repeated doses at 4, 5, and 7 days respectively. His own method was, to multiply the weight of the child in lbs. by four. This gave the dose in mg. After a dose up to 200 mg. the child was seen in the ordinary routine examination. Between 200 and 250 mg. the child was kept under observation, if possible, in bed. The dose was not repeated under three months. As epilation was never complete, the head was painted with 2 per cent. tincture of iodine t.d.s. and washed on alternate days. The results had been very satisfactory; of 101 cases thus treated 94 were entirely successful. In three cases only were there severe toxic symptoms.

Dr. SEMON said he had used the treatment since its introduction and had no cause to regret it. He completed epilation by hand at the fifteenth to sixteenth day under light anæsthesia, but he would now try Dr. Ingram's method of using 2 per cent. iodine.

Dr. HALDIN-DAVIS limited the use of thallium to those who were too young for X rays. His method was to multiply the weight of the child by 3·9, but he never gave more than 150 mg. He made a practice of checking the dispenser's calculations and measures to prevent errors.

Dr. TWISTON DAVIES endorsed everything Dr. Ingram had said. He had reported a case in 1928 of a child, aged 9 years, who was seriously ill for six weeks after a therapeutic dose, and who still had attacks of giddiness three months later. She had been seen recently and was perfectly well.

Salvarsan Compounds.

Dr. SEMON, in a paper on the Toxicology of Salvarsan Compounds, said that the arsenical content of salvarsan was still the generally accepted cause of toxic manifestations ensuing during or after its administration. He personally had never seen a case of jaundice following the administration of arsenic. Further, if it was the arsenic in the salvarsan that damaged the liver, we ought to see an equivalent number of cases of neuritis, but he had never seen or heard of a case of foot-drop following an injection of salvarsan. He thought there was even less justification in thinking that arsenic was responsible for the dermatitis which follows the use of salvarsan. He admitted that the case of acute dermatitis after salvarsan is clinically indistinguishable from that due to inorganic arsenic, or from acute dermatitis due to any other cause. It was quite otherwise with the pigmentation which followed the prolonged administration of inorganic arsenic, and which was never seen after salvarsan. In support of these clinical contentions that arsenic is not the main cause of either cutaneous or hepatic complications after salvarsan, Dr. Semon gave an account of certain biochemical investigations by Drs. V. E. and N. L. Lloyd which point to the amino-benzene derivatives as being the cause of salvarsan jaundice. He further pointed out that a similar type of jaundice was seen among the T.N.T. workers during the war, and has also followed another benzene derivative, atophan. He concluded by saying that, in his opinion, the time had come for a revision of the 1922 report of the Salvarsan Committee of the Medical Research Council, which attributes the toxic manifestations of salvarsan to the arsenic, and which almost ignores, or omits to examine, the evidence for other possible or more probable causes.

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[1] See THE LANCET, 1931, i., 457, 474.

REVIEWS AND NOTICES OF BOOKS

Selected Writings of John Hughlings Jackson.

Vol. I.: *On Epilepsy and Epileptiform Convulsions.* Edited by JAMES TAYLOR, M.D., F.R.C.P. London: Hodder and Stoughton. 1931. Pp. 500. 25*s.*

IT is 20 years since Hughlings Jackson died. Justly considered the founder of scientific neurology in England, his name has ever been one to conjure with among those who knew him in the flesh and who fell under his personal influence. Comparatively few honours came his way in life; his fame rested securely in the minds, as did affection for him in the hearts, of those who were fortunate enough to be of his time. Both at home and abroad the Jacksonian tradition is evident, and universal satisfaction must be felt by those who owe much to him that now at length a collection of the works on which his ultimate reputation must depend has appeared under the able editorship of Dr. James Taylor. While many of the papers chosen by the editor must be familiar to neurologists the world over, there are included others which have always been rather inaccessible, and it is gratifying to see these here reproduced. One who turns over these pages is brought into contact with a philosophic mind capable in a phenomenal degree of seeing beyond clinical data, minutely observed and recorded, to fundamental dynamic conceptions of neural and psychical function. Even to-day fresh light is seen to be thrown on familiar symptoms by the genius who could synthesise as well as analyse, and who sought tirelessly for causes and explanations concording with general scientific canons and principles in other fields than the purely neurological. It is surprising, perhaps, how little in the volume would in these days be considered obsolete if not actually mistaken, when the state of knowledge of Jacksonian times is borne in mind. Epilepsy is unchanged in its essentials—a remark not applicable to all nervous affections; and these Jacksonian contributions can be studied again with great benefit by twentieth century workers.

La défense de la santé publique pendant la guerre.

By Dr. LÉON BERNARD, Professor of Medicine, Paris. For the Carnegie Endowment for International Peace. London: Humphrey Milford, Oxford University Press. 1931. Pp. 336. 8*s.* 6*d.*

THIS new volume, in a series dealing with the economic and social history of the world war, is concerned with the problems of public health which arose in France and among French troops as the result of the hostilities, and with the measures adopted to meet them. A concise account, in Part I. of the book, of the general measures taken to protect the civil and military populations from the diseases which are apt to follow in the train of war, is followed by a detailed survey of the influence of hostilities upon the incidence, mortality, and control of the principal acute communicable diseases. In the third and last part, the social scourges—viz., tuberculosis, venereal disease, alcoholism, and maternal and infant mortality—are discussed at considerable length.

Prof. Bernard directs attention to the heavy incidence of the epidemic diseases in training camps, especially in the early years of the war, as contrasted with the armies at the front; to the steady, and in the case of diphtheria and epidemic meningitis, the rapid decline of incidence in training camps after the first year; and he concludes that sub-infections producing mass immunisation were the cause of this decline. He attributes the lesser extent to which measles shared in this movement to the absence of durable latent immunisation to this disease. As to mumps, there was actually a heavier incidence both in camps and at the front toward the end of the war. An interesting observation relates to the fatality of measles and scarlatina, which was much higher in hospitals and camps than in the field, a circumstance which the author attributes to the reduced opportunity for secondary infections at the front. As regards tuberculosis, venereal diseases, and child welfare, it is abundantly shown how the emergencies of the war promoted measures which had been tentative only in France before 1914, and how the country is now benefiting from the experience then acquired. The book is full of interesting charts and tables, and is well indexed.

Demonstrations of Physical Signs in Clinical Surgery.

Third edition. By HAMILTON BAILEY, F.R.C.S., Surgeon to the Royal Northern Hospital. Bristol: John Wright and Sons, Ltd. 1931. Pp. 227. 21*s.*

IN its new form some omissions from former editions of this book have been rectified, whilst the insistence on the names of originators of clinical signs has been dropped. The student passing over from medical school to hospital practice could not have a better guide than this book. He will find not only simple, clear descriptions of the common clinical tests, but mostly also pictures showing just how they are carried out in practice. The illustrations are excellently reproduced. We have nothing but praise for this useful book.

Aids to Surgical Anatomy.

By Richard H. Hunter, M.D., M.Ch., Ph.D., Lecturer in Anatomy at Queen's University, Belfast. London: Baillière, Tindall and Cox. 1931. Pp. 184. 3*s.* 6*d.*

This is an excellent little book. It is surprising how much Dr. Hunter has been able to put into such small space. In a future edition we would like to see the hypothetical Ludwig deprived of his "angle," which should be restored to Louis, and the relations of the spinal accessory to the jugular vein described less dogmatically. These, however, are trivial details from the surgical point of view. Students will find this book a real aid to revision.

A Text-book of Operative Dentistry.

By W. H. O. McGehee, D.D.S., M.D., Professor of Operative Technology, New York University College of Dentistry. London: J. and A. Churchill. 1931. Pp. 932. 42*s.*

Dexterity in the conservative methods of dental surgery, unless controlled by the skill in differential diagnosis which is founded on knowledge of dental pathology, may lead to disastrous results. The two chapters on diagnosis at the beginning of this work on operative dentistry are therefore valuable, since all the routine methods of diagnosis, including radiograms, are fully discussed. The next chapter on oral prophylaxis includes not only the instructions to be given to the patient with regard to the care of the mouth, but also an account of remedial and prophylactic methods practised by the dentist, such as scaling and the extension of carious cavities in order to prevent recurrence of caries. An important section is concerned with technique. Teachers do not always appreciate the desirability of training the student from the beginning to use his tools in the correct way, so as to gain the maximum of mechanical efficiency. Many a dentist never learns to economise his energies, and accomplishes his work only by an extravagant expenditure of exhausting effort; while medical men who use dental instruments only on rare occasions are, as a rule, even more clumsy. This section is illustrated by an interesting series of pictures which show the right and wrong ways of holding various instruments. Particularly convincing are the photographs showing the correct and incorrect "stances" for the operator in different operations on the mouth.

The teaching on the important subject of cavity preparation in general follows the well-known work of G. V. Black. It is arguable that the standardisation of cavities has been pushed too far, and that the injudicious enthusiast may tend to destroy an unnecessary amount of sound tissue. The effort to produce sharp angles and rectangular cavities is no doubt sound in theory, but it may lead to an enlargement of the cavity to a degree seriously threatening the stability of the tooth. The impression left on the reader of this section of Mr. McGehee's book is that the tooth itself is less important than the filling. In a sense this is true, but it is possible to carry this conception too far. We have every sympathy with the author's desire to standardise technique for teaching purposes, but must point out that a rigid application of his principles by a conscientious but unimaginative operator might lead to considerable needless sacrifice of tooth substance. The guarded account of amalgam restoration, and the author's insistence on the necessity of careful attention to detail in the use of this material, will be generally appreciated. The section on the cast gold inlay is also very good. The revival of interest in the use of porcelain is demonstrated by the excellent account of the ways in which porcelain may be found useful. Yet in our view, however, it is doubtful whether porcelain inlays have now any real place in dentistry. The porcelain jacket crown, on the other hand, has an acknowledged value, limited only by the great skill required in its manipulation, and the time it takes to apply. It is in fact at present a luxury in dentistry. The description here given of the stages in its preparation is one of the best we have read. Even the novice who studies this section carefully should carry away a clear idea of the processes involved.

The book is lavishly illustrated with pictures of a high merit, and we commend it as a safe guide to the various operations of conservative dentistry.

The Alcohol Habit and its Treatment.

By Walter E. Masters, M.D., M.R.C.S., D.P.H., of the Middle Temple, Barrister-at-Law; Medical Superintendent of the Hare Nursing Home, Chislehurst London: H. K. Lewis and Co., Ltd. 1931. Pp. 190 6*s.*

This volume deals clearly with the subject of alcoholism mainly from the standpoint of the voluntary nursing home; the advantages of such treatment over that of the compulsory inebriates' retreat is emphasised, and the need for additional voluntary institutions is pointed out. The nature of the habit and of its predisposing causes and motives is discussed, and the various clinical types of established alcoholism are described.

In the matter of treatment the author not only deals fully with the factors of physiological rest, diet, and drugs, but points out the possibilities, and indeed the necessity, for psychotherapeutic measures where the personality of the patient or his home environment make these desirable. In regard to prognosis it may be influenced by the recognition of adverse factors outside the physician's control, particularly in connexion with the patient's return, on discharge, to his former associations. This statement of institutional methods of treatment of alcoholism might serve as a model of something which is urgently required—a system of treatment for such patients on their discharge from institutional care, in which the private practitioner could coöperate.

Opticks.

By Sir Isaac Newton. London: G. Bell and Sons, Ltd. 1931. Pp. 414. 6*s.*

In a foreword to this reprint of the fourth, corrected, edition of Newton's "Opticks," Prof. Einstein says, "Fortunate Newton, happy childhood of science! He who has time and tranquillity can by reading this book live again the wonderful events which the great Newton experienced in his young days." Prof. E. T. Whittaker contributes an introduction, in which he recalls the fact that a hundred

THE LANCET.

LONDON: SATURDAY, OCTOBER 24, 1931.

HIPPOCRATES, HARVEY, AND US.

IN the Harveian Oration, with which this issue of THE LANCET opens, Dr. ROBERT HUTCHISON analyses the character of the great discoverer as it emerges from records which have been the subject of search and research ever since the foundation by the Royal College of Physicians) of the annual Oration. He finds, ave been anticipated, the prominent elations of t s of HARVEY's character to be love verence for nature, the charity which vy and pride, the imagination which ickly the significance of facts, and the ur which enables a bold innovator, ting the ridiculous side of concepts is opposed, to do so without injurious o far Dr. HUTCHISON is following out, and it has never been followed by loying fitter words or apter quotation; end of the Oration he takes, indeed, of his own. For he shows that much of therapeutics, which could not have lized without HARVEY's fundamental dis- brings medicine to-day into touch with moral doctrines of Hippocrates.

HUTCHISON's description of HARVEY's ge for us does not stress the connexion en the humoral doctrines and endocrinology y detailed way, but his suggestion of that xion is fascinating. When HIPPOCRATES his principles and practice on the existence restorative principle which it was the duty of clinician to discover and cherish, he was cating an objective to which all medicine, as study has become more and more scientific by eradication of more and more superstition, subscribed consistently and never with more formity than to-day. But when HIPPOCRATES s enunciating the humoral doctrines, necessarily thout ability to distinguish between the various ssues of the body, he was recognising that all e phenomena of life depend on interaction, d that disease is the result of alterations in the operties of the permeating fluids, to which anges in the tissues are secondary. Here he this teaching our latest pathology. The detection, through biochemistry, of the changes in the fluids, in order that structural modification may e prevented, is the foundation of modern therapeutics, and it is a tribute to the genius of the old reek school that we can see in the revolution of medicine, due to HARVEY, a development of the Hippocratic wisdom. "The circulation of the blood," says Dr. HUTCHISON, "is for the neo-Hippocratist, one of the chief modes by which the integration of the body is achieved, for through the medium of the blood every cell is able to influence every other, even the most remote. Integration is also maintained by the endocrine hormones carried by the blood, and to an even greater extent by the vegetative nervous system." Thus, HARVEY becomes the middle term between HIPPOCRATES and ourselves, and the growth of medicine is seen to be continuous throughout the ages.

Dr. HUTCHISON is full of wisdom, and nowhere in his Oration is this more obvious than in his remarks on the value of personality in science. Personality is important both in the attainment of truth and in the advocacy of truth, for "truth" he says "is perceived by the emotions as well as by the intellect, and the poet and discoverer are to some extent one." The need for imagination is always accepted for the poet, but very usually denied for the scientific worker. In the popular mind scientific truth is a matter of calculation, of mathematics and physics, of the balance and the calibrator. The implements of the worker are too often assumed to define and confine scientific research, while imagination is held to be a dangerous and therefore an inadmissible quality. Yet, in fact, the discovery of fundamental principles in science is always attended, during its evolution, by the display of the highest imaginative qualities; no sound generalisations can otherwise be made, and no laws can be established, without the faculty in the worker of prevision; and it is by generalisations that knowledge advances. But they must be founded upon the ascertainment of the special facts, when the lessons are grouped together for interpretation. Through his intensive inquiries the specialist is a pioneer in proportion as his contributions enter the stream of general progress, to advance, confirm, or modify the general laws. The true scientist is not a calculating boy, even though he may be immeasurably diligent and accurate in his calculations—this he must be; but those scientific workers, to whom the world owes debts that can never be paid, invariably have been endowed with vision beyond their individual interests. And never was this demand on their imagination more clear than it is in medicine to-day; as Dr. HUTCHISON briefly puts it, toilers in the field of medical science must see the necessity for unity.

THE FUNCTIONS OF VITAMIN A.

THE versatility of vitamin A is at first sight incredible. For pyorrhœa, puerperal sepsis, stone, respiratory diseases, xerophthalmia, hemeralopia, and degeneration in the spinal cord have all been referred in man or animals, in one way or another, to deficiency of this accessory food factor. Yet on closer inspection this heterogeneous collection of lesions mostly forms itself into a single group, as due to mucous membrane degeneration, leading to infection. And if, as was shown by S. B. WOLBACH and P. R. HOWE in 1925, deficiency of vitamin A results in keratinisation of the mucous membrane throughout the greater part of the body, then it is easily understood that the defences of these cells will be broken down and the entrance of pathogenic organisms will be facilitated. The subject from this point of view we discussed a fortnight ago (p. 805).

Beyond lesions referable to deterioration of mucous membranes there remain hemeralopia, or night-blindness, and spinal cord degeneration. The relationship of vitamin A to the health of the eye was one of the earlier discoveries in the history of vitamins. Only the grosser lesions of the cornea were, however, at first recognised, and though a form of night-blindness was long believed to be of dietetic origin, its relationship to any specific vitamin deficiency has only recently been established. HIPPOCRATES recommended ox liver dipped in honey for a cure, tradition in Japan favoured bird's liver, and in Newfoundland cod's liver, or, better still, the liver of a gull or a puffin is the popular local remedy.[1] In actual fact any potent source of vitamin A, whether animal or vegetable, will effect a cure. L. S. FRIDERICIA and E. HOLM in 1925 correlated the condition with a failure to regenerate the visual purple in presence of a deficiency of vitamin A in rats, and K. TANSLEY [2] has worked this out still further, having devised a photographic method of measuring the visual purple. W. R. AYKROYD mentions several interesting cases in Newfoundland, in which night-blindness first came on after prolonged exposure to bright sunlight, the brilliant light promoting the more rapid exhaustion of the visual purple. There seems little doubt therefore that night-blindness appears when the organism is partly starved of vitamin A, and that it is caused by failure or delay in regeneration of the visual purple. We do not yet know what part the vitamin A plays in this connexion nor why this particular function should be damaged earlier than any other, but an interesting additional contribution to the subject has just been made by A. M. YUDKIN, M. KRISS, and A. H. SMITH,[3] who show that the retinal tissue of the normal eye of pigs is exceptionally rich in vitamin A, though the choroid tissue is not; the retinal tissue of animals fed on a diet deficient in vitamin A has not yet been examined.

With all this it comes as a surprise to find that vitamin A deficiency can play an important part in spinal cord degeneration. In the current issue of *Brain* Prof. E. MELLANBY brings up to date some striking observations—already outlined in a lecture he gave in America [4]—which have arisen out of his work on rickets in puppies. The rachitic animals, when on a diet rich in cereals, more especially wheat germ or rye germ, often developed great weakness, especially noticeable in the hind legs, together with spasticity. At first it was thought that these symptoms were part of the manifestation of rickets, particularly as the cod-liver oil which cured the rickets also cured or prevented the muscular weakness. However, it was soon noticed that muscular incoördination was also present, and histological examination of the spinal cord revealed degenerative changes in the form of demyelination of the nerve-fibres. Further experiment also showed that while the rickets was controlled by vitamin D, it was vitamin A—whether as cod-liver oil, butter, mammalian liver oil, cabbage, carrot, or carotene—which prevented the nerve degeneration or cured it, in so far as cure was possible. The development of the condition was however somewhat uncertain, and it was found that at least one important factor hindering nerve degeneration was a large reserve of vitamin A in the experimental animal's own liver. The cord degeneration, and to some extent the clinical symptoms, resembled the pathological conditions of the nervous system associated with human convulsive ergotism. Ergot was therefore added to the experimental diet of the puppies, and it was found that the lesions were much enhanced, but they were also equally inhibited by an abundant supply of vitamin A. Prof. MELLANBY points out that this observation is probably of immediate practical importance in treating convulsive ergotism in rye-eating countries. Ergotism usually appears epidemically in times of famine, and one may now assume that these are also times when vitamin A is very scarce, so that the neurotoxin in the ergot of rye is able to produce its ill-effect uncombated. He further suggests that his observations may also be significant in other diseases in which there is spinal cord degeneration. In pellagra, for instance, it may be that while the cutaneous lesions are due to a deficiency of vitamin B_2, the nervous lesions are due to a toxic element in maize or other cereals, which is ineffective in presence of vitamin A. It is thought that these results may also have some bearing on the production of the nervous lesions in lathyrism, tabes dorsalis, and pernicious anæmia. In the last there is some evidence (C. C. UNGLEY and M. M. SUZMAN [5]) that though the blood picture is cured by administration of liver extract, the nervous symptoms are not benefited until whole liver is administered. One point at least in which whole liver differs from liver extract is in its rich content of vitamin A.

The whole concept stimulates clinical investigation, and as far as the neurotoxin of ergot and cereals is concerned, and its neutralisation by vitamin A, there is a firm experimental basis. Till now the only vitamin held to play an important part in maintaining the health of the nerves has been vitamin B_1, and possibly also B_2; but we must certainly now be prepared to include vitamin A in this category also..

A NEW SERUM FOR PLAGUE.

WHILE laudable progress has been made in the prevention of plague, small success has been obtained hitherto with its specific treatment. Thus in India, where plague has been in evidence for the past 35 years and the field for an effective form of treatment is manifest, neither vaccines nor the bacteriophage nor such examples of plague anti-serum as have been available have been found to have any great effect in promoting recovery. Although it has not reduced the case-mortality by more than 7–10 per cent., serum appears to be the most promising of these remedies, and accordingly a careful investigation has been carried out by Dr. B. P. B. NAIDU and Col. F. P. MACKIE at the Haffkine Institute, Bombay, during the past four years for the special and avowed object of obtaining a therapeutic serum of increased potency. The successive stages and results of this inquiry are described by them at p. 893 of our present issue, and are highly instructive.

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[1] Jour. of Hyg., 1930, xxx., 357.

[2] Jour. of Physiol., 1931, lxxi., 442.

[3] Amer. Jour. Physiol., 1931, xcvii., 611.

[4] Jour. Amer. Med. Assoc., 1931, xcvi., 325.

[5] Brain, 1929, lii., 271.

It seems that in order to obtain successful curative serum for plague at least two requirements must be met. The first is to employ as antigen vaccines prepared from the most virulent strains available, and to see that this virulence is maintained throughout the process of vaccine manufacture. Emulsions made of plague-infected spleen are more virulent than cultures on artificial media on which *Bacillus pestis* is very apt to lose its virulence. The second requirement concerns the kind of animal employed for providing the serum. For reasons stated by them, NAIDU and MACKIE decided not to use the horse and to attempt the production of anti-plague serum from the more susceptible bovines and sheep. The degree of potency to which curative serum can attain was studied experimentally. First of all in rabbits, and by intense immunisation, a serum was prepared of such efficacy that with a comparatively small dose, given within 24 hours of infection, all the animals were saved, and even at a later stage a considerable proportion recovered under influence of the serum when the controls died. Sheep were next tried and here the process of immunisation was so severe that at the end of 16 months only 3 out of 21 survived. Nevertheless, the curative value of their serum was found to be two and a half times greater than that of the plague serum of the Pasteur Institute. In the third place, calves were used and a serum prepared that was found to have a curative value three times that of the Pasteur Institute serum. At this stage a comparison with anti-plague sera from a diversity of sources, further confirmed experimentally the superior curative potency of sera prepared at the Haffkine Institute. With regard to the presence of antibodies to *B. pestis* demonstrable in vitro, while the anti-plague serum prepared from horses at the Pasteur Institute and at the Lister Institute gave negative results, the serum prepared at the Haffkine Institute was found to possess both agglutinins and precipitins for local strains of the plague bacillus.

NAIDU and MACKIE were now in a position to attempt the specific treatment of human cases of plague, the serum available for this purpose having been prepared from 5 sheep, 3 bullocks, and 4 buffaloes. An outbreak at Hyderabad provided 76 cases, of which 33 did not receive serum; and of these 23 died. Of the remaining 43 who were treated with the serum 15 died. Comparison of individual cases in both groups when graded by the degree of septicæmia present when treatment began showed that when the blood had become heavily infected by the plague bacillus all of 8 control cases died, whereas out of 10 such cases treated with serum 3 recovered—a very remarkable achievement when all previous experience in India has shown that such cases have a mortality of 100 per cent. In view of these and further results described in their paper, and in view especially of the adequate manner in which their experiments were controlled throughout, it appears that the claim of NAIDU and MACKIE to have produced a more potent anti-plague serum than any that has hitherto been available is justified, and both these investigators and also the Haffkine Institute are to be congratulated on such an achievement. At the same time the number of human cases treated so far is admittedly small, and the position of such a serum can never be secure until the modus operandi is fully established, and a method of standardisation arrived at that will guarantee the potency of every batch and every sample.

MENTAL HYGIENE IN INDUSTRY.

THE need for physical hygiene in industry has become a commonplace, but wherever invalidity statistics become available the disturbing fact emerges that a serious amount of disability arises from causes psychological rather than physical. A brochure issued by the International Labour Office on "Mental Hygiene in Industry" gives a summary of observations, somewhat lessened in value by incomplete references, which indicates the extent and nature of these disabilities. Defects of mental adaptation show themselves in industrial unrest, in frankly psychoneurotic illness—to which the old name of neurasthenia is still applied by one of the authors quoted—or in bodily conditions such as the occupational neuroses or in circulatory, digestive, and somatic reactions associated with hysteria. This catalogue of troubles is startling; recommendations for coping with them include the psychophysiological selection of workers, the examination of the mental state of workers who have been the victims of accidents or shocks or have acquired mental defects at work, as well as coöperation with psychiatric clinics, presumably for purposes of treatment. These requirements demand a general knowledge of the subject that our present curriculum makes no claim to provide, and justify the provision of post-graduate instruction in the course of lectures on medical industrial psychology at the London School of Hygiene and Tropical Medicine. The psychoneuroses have too long been regarded as imaginary maladies, as luxuries of the idle and self-indulgent. The recognition that industrial efficiency depends upon their prophylaxis and treatment is only one among many reasons for giving the subject the attention that it needs.

AT a meeting of the Royal College of Physicians of Edinburgh on Oct. 14th, it was resolved that in view of the national situation, the ceremonies in connexion with the celebration of the 250th anniversary of the foundation of the College be postponed to some future date.

Sir Edward Marriott Cooke, who died in London on Oct. 17th in his eightieth year, was associated all his life with the care of mental disease. He was chairman of the Board of Control from 1916–18, when many of the public mental hospitals were converted into hospitals for sick and wounded troops. For the last ten years of his life he had acted as unpaid Commissioner under the Mental Deficiency Act.

ANNOTATIONS

UNITY IN MEDICINE.

IN his presidential address to the Pathological Society of Manchester on Oct. 14th, Prof. W. Fletcher Shaw reminded his hearers of the astonishing fact that until 1886 licences could be obtained to practise medicine, surgery, and midwifery separately. The Act of 1886 then insisted that no one could reach the Medical Register without having been trained and examined in all three subjects. Curiously enough the chief factor in bringing this about was the stress laid on the importance of a general training in science and then in all branches of medicine, not by the official colleges but by private medical schools. Of these the most famous was that of William Hunter in London; its popularity and that of similar schools compelled the hospitals to found schools of their own at the end of the eighteenth century. Turner's school in Manchester was the first to be founded outside London; it was founded in 1824, and it still exists as the parent of Owens College and the grandparent of the medical faculty of the Manchester University. Fusion having been accomplished, it might have been expected that the branches of medicine would remain fused. Unfortunately, said Prof. Shaw, this is not so; all these subjects are included in the qualifying curriculum, but during the period of fusion other forces diverted the student's post-graduate work of these into separate and distinct channels. These forces were the rapid advance in knowledge, and the formation of special hospitals. These hospitals did little harm at first, as their staffs treated all the types of illness met with in private practice; but gradually there arose groups, interested only in special branches, who spent the whole of their post-graduate lives in the practice of that branch. This was, he said, bad for patients and bad for teaching, as each teacher tended to look at a subject from his own particular angle, without reference to any other. And the specialisation extended even to the basic subjects—anatomy, physiology, and pathology—which in many schools were taught without relation to each other or to clinical subjects.

Prof. Shaw went on to speak of how these evils might be remedied in the future by giving more attention to the teaching of the basic subjects, students being encouraged to take an honours degree in physiology after passing their ordinary second examination. Teachers of these subjects should be chosen as much for their ability to impart knowledge as to carry out research; they should themselves have had clinical post-graduate training, and throughout their teaching career they should keep in touch with clinical work. No more special hospitals should be founded; only special departments of general hospitals. Many special hospitals, he said, were doing excellent work and should not be scrapped. When, however, rebuilding had to be carried out, it should be as part of a scheme whereby they were grouped together, each retaining its own name, funds, and governing board, but with complete freedom of medical service, so that members of one staff could be called in consultation with the others, and patients freely transferred within the group.

England, Scotland, and Ireland possessed their separate Royal Colleges of Physicians and Surgeons, and now there was a College of Obstetricians for the whole country, each with its own special regulations and tests. Candidates for hospital staff appointments in different centres reach their goal by different means: in some stress is laid upon post-graduate clinical experience, in others upon special qualifications; but no hospital or college, said Prof. Shaw, requires its candidates to produce evidence of post-graduate training in medicine as a whole. By combination these colleges could insist upon a broad general training in medicine for all candidates for consultant rank. An examination after the pattern of the primary F.R.C.S., or an honours degree in physiology, would guarantee special training in the basic subjects. After qualification, a period of one or one and a half years of resident work, equally divided between the three main branches, followed by a clinical examination ranging over the whole subject of medicine, would ensure a broad general training. Then each candidate might be free to fulfil the special requirements of the particular college he wished to enter. Thus, said Prof. Shaw, the teaching of clinical medicine would rest upon a broader foundation—at present a vague dream, but one which he hoped some day might come true.

CANCER STUDIES IN NORWAY.

Two papers in *Norsk Magasin for Laegevidenskaben* for June are based on the valuable material collected by the Norwegian Cancer Committee which has been at work since 1907. The first of these papers, by Dr. G. H. M. Waaler, is a brave attempt at finding out what part, if any, heredity plays in the genesis of cancer. Since 1908, some 6000 cancer notifications have been made to the cancer committee. These notifications represent the "primary cases." The "secondary cases" are represented by the deaths from cancer in the families of the primary cases. Many investigations of secondary cases were made at the time of notification of the corresponding primary cases; and in the case of about 2000 families a second investigation was made in 1929 with regard to the incidence of cancer in the families of primary cases noted several years earlier. After publishing numerous tables and commentaries thereon, Dr. Waaler comes to the conclusion that there may be two hereditary factors which, independently of each other, predispose to cancer. He puts at about 16 per cent. the frequency with which each of these factors comes into play. One of them, he finds, plays an equally important rôle among men and women, while the other, connected with the sex element, predisposes more to cancer in the woman than in the man. Cancer may not infrequently occur among men in whom neither of these factors is present, but this is much less frequently the case among women. Dr. Waaler admits that most of the observations on which he bases his belief in the influence of heredity might be cited in favour of the influence of environment. But the observation which is most in support of the hereditary factor, as opposed to the environmental, is the greater incidence of cancer among blood relations than among married persons; while members of the same family usually scatter after they have reached the age of 20, it is precisely after this age and for the rest of their lives that married persons live in the same environment.

In the second paper, Dr. F. G. Gade, secretary to the cancer committee, draws attention to the similarity of the behaviour of cancer in the different reproductive organs of the woman, as shown by the returns in Norway for the 10-year period 1919–1928. In the age-group 50–59, the deaths from cancer of the ovary accounted for 27·8 per cent. of all the deaths from cancer of this organ. The corresponding figure for cancer of the uterus was 26·3 per cent., and for cancer of the breast, 27 per cent. There was thus at the age between 50 and 60 a death-rate from cancer in these organs which was much higher than the corresponding death-rates in any other decade in life. But when the deaths from cancer of the stomach in women were investigated, it was found that the peak was not reached till the decade 70–80, in which decade 31·4 per cent. of all the deaths from cancer of the stomach in women occurred. Dr. Gade finds similar observations in the posthumous work of Clemens v. Pirquet (Allergie des Lebenalters. Die bösartigen Geschwülste) published in 1930 and based on the cancer death-rates of England and Wales in the period 1911–1926. Dr. Gade is inclined to support the theory according to which the lower incidence of cancer of the stomach in women, as compared with men, is due to so many cancer-predisposed women having been killed by cancer of their reproductive organs before the disease had had time to develop in the stomach. He sees in the high cancer-rate in the reproductive organs of the woman after the climacterium a biological law, senile changes in these organs promoting cancer therein, just as senile changes in general seem to favour the development of cancer in other parts of the body.

THE PRESCRIBER.

WITH the October number the *Prescriber* completes its little jubilee. From a modest origin 25 years ago as an "aid to prescribing," with an issue of 1000 copies, it has grown to maturity as a journal of cosmopolitan outlook and catholicity of content. We offer our congratulation to Dr. Thomas Stephenson, who has been its creator, pilot, and inspiration. Originality has been throughout the keynote of the journal and it has provided contact for the practitioner, specialist, and bench-worker with the literature of drugs and their actions. Original articles and summaries prepared by qualified abstractors have been grouped month by month to form a compact review of modern teaching and practice. The busy practitioner has had good reason to appreciate the monographs dealing with recent advances in endocrine and spa treatment, as well as the systematic accounts of therapeutic progress, always combined with judicious criticism of newer remedies. The teacher has not had to look in vain for a survey of contemporary work, or for a reference to the original sources of information. The journal has never lacked charm and distinction. Observations and opinions have been set out with a judicial authority and without the premature praise or hasty condemnation which have blighted the career of so many remedies and methods. We wish our contemporary a continued popularity and prosperity.

GAS AND OXYGEN ANÆSTHESIA.

SOME interesting questions are raised and to some extent answered in Dr. Macklin's paper on gas and oxygen anæsthesia which we publish at p. 897. The questions affect both theory and practice. As regards the latter, no anæsthetist to-day, we imagine, disputes the proposition that whenever an operation can be perfectly carried out with no other anæsthetic than gas and oxygen, the gain for the patient is great. The trouble is that those very patients for whom it is most desirable to avoid all inconvenient after-effects, on respiratory or gastro-intestinal systems, are the very patients for whom gas and oxygen alone is not effective enough. We allude, of course, to patients undergoing operations on the upper abdomen. In these people Dr. Macklin claims good results in only a third of the cases and obviously that is not enough. An anæsthetist must be sure of a much higher proportion of good results for any method which he recommends. The important practical question is how to make gas and oxygen, without ether or chloroform, perfectly effective for upper abdominal operations. The best answer we believe is barely considered by Dr. Macklin. It is to be found in the much more frequent use of local injections for the production of relaxation. The surgeon who desires the best possible condition of his patient after operation will expect of the anæsthetist a perfectly quiet induction of unconsciousness and a maintenance of that state without deleterious effect on the patient. For perfect relaxation he will aid and abet the anæsthetist by local means. In no other way can the complete exclusion of chloroform and of ether be secured. Endotracheal use of gas and oxygen, and the proper employment of basal narcotics, can help, but they cannot of themselves always ensure perfect relaxation of the upper abdomen with no other anæsthetic than gas and oxygen. Allied with skilled use of local infiltration however they can certainly do so. Dr. Macklin believes that to render gas and oxygen effective by employing secondary saturation is no less safe than to achieve the same object by addition of ether or chloroform. Theoretically he makes out a good case, particularly from the point of view of the patient's condition after operation. Neither method, however, appears to equal either in effectiveness or harmlessness the conjunction of basal narcotics, gas and oxygen and local analgesics.

SIZE OF THE HEART IN CHILDREN.

DR. A. F. Hecht, of the University Children's Clinic in Vienna, has carried out an extensive investigation[1] of the size of the heart in children in the hospital or attending a special out-patient department for heart affections. The children ranged in age from 6 to 14 years and in addition to having an orthodiagram made of the heart, each child was carefully measured as regards body-weight and height, sitting height, and breadth of thorax. Dr. Hecht used the Amsler planimeter to measure the actual superficial area of the heart shadow, a measurement found by Dr. Bedford and Wing-Commander Treadgold in our last issue (p. 838) to be less valuable than the transverse diameter, although they admitted that in the hands of a single observer the experimental error might be no greater. This area, stated in square centimetres, was used as the numerator of a "surface-quotient" of which the divisor was the weight in kilogrammes reduced to the two-thirds power. Expressed as a formula this means that

$$\text{Surface quotient} = \frac{\text{Area}}{\text{Weight}^{\frac{2}{3}}}$$

In order to avoid unnecessary decimals the result is multiplied by 100. Based upon nearly 400 observations a normal group is first described by Dr. Hecht. He divides this group into three: (1) perfectly normal cases; (2) those with a systolic murmur without any history of rheumatism or any evidence of heart disease; and (3) those with slight functional derangement of the circulatory system without obvious pathological lesions in the heart. In these three divisions the surface-quotient was 737, 761, and 781 respectively, giving an average value of about 750. Particularly heavy children gave an abnormally small quotient (16 cases under 600) and thin children tended to give an abnormally high quotient. Among children with a definite rheumatic history, but without obvious heart affection, the average surface-quotient was below the normal, lying about 725, and among cases of chorea without heart involvement the average quotient was approximately normal, although no case out of 10 examined was quite normal, the values ranging from 670 to 940. In cases with definite heart disease the values found for the surface-quotient revealed many points of interest. For example, in patients with definite mitral disease (nearly 200 cases) the average quotient for boys was 890 and for girls 800. Failure of compensation raised the figure in one instance to 1980 while in the absence of any rheumatic recurrence the surface-quotient may be observed to decrease as in one instance where it fell from 1320 to 720—a favourable factor in the prognosis. In cases of failure with gross congestion of the liver the values lay between 1000 and 2000 while in one patient with auricular fibrillation the quotient was found to be 1910. In over 40 patients with both mitral and aortic lesions the average surface-quotient was 940 while over 60 examples of congenital heart affection gave an average value of 850. Repeated observations on this latter group indicated that in certain cases the quotient appeared to become smaller as the child grew so that the usually found parallelism between the surface area of the heart and the two-thirds power of the weight was absent. Another interesting group of patients examined was that in which children who had suffered from some infectious disorder, such as diphtheria, scarlet fever, or influenza were observed. A slightly raised average surface-quotient was found for these cases (780), and in one instance, where the figures rose from 715 to 845 while under observation, the recording of the surface-quotient served as a useful warning that the child's heart had been more damaged by the infection than had been obvious to other methods of examination. Dr. Hecht gives full details in his paper of children suffering from many other disorders in addition to the examples here quoted. He says that it is not yet possible to assert that an abnormal value for the surface-quotient necessarily means a pathological lesion of the heart. Nevertheless his observations suggest a useful line of inquiry.

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[1] Jahr. f. Kinderh., 1931, cxxxiii., 26.

CHRONIC ULCER OF THE LEG.

A NEW method of treating chronic ulcer of the leg is reported by I. S. Tunic and D. H. Kling,[1] who claim successful results in 88 per cent. of a series of 25 cases. Very briefly, it is based on the belief that all such ulcers are surrounded by a ring of fibrotic tissue. To break down this circulatory barrier and stimulate the formation of fresh blood-vessels and healthy granulation tissue, injections of 2 to 10 c.cm. of normal saline solution are forced from a Luer-Lock syringe into the edge of the ulcer every three or four days, until it becomes more vascular and begins to heal. A previous disinfection is advised if much sepsis is present, and the edges of the ulcer are painted with weak tincture of iodine before inserting the needle. Because of the force sometimes required to ensure the solution reaching the correct plane, some pain may be experienced, but it can be readily controlled with 2 per cent. novocain previously instilled. During treatment only bland ointment or sterile vaseline dressings are permissible. The method is said to be exceedingly helpful in the treatment of the chronic "chemical ulcers" resulting from leakage during the injection of varicose veins. If this is so, it may well prove a boon to sufferers from this accident, for such ulcers may take months to heal and are exceedingly painful. It is somewhat surprising that Tunic and Kling make no mention of the results obtained with the pressure bandages advocated by Dickson Wright in all varieties of leg ulcer, and now in use in most out-patient departments in London. The success of this treatment was evident in the discussion reported at p. 913.

ON SENDING PATIENTS TO DAVOS.

THE Queen Alexandra Sanatorium Fund helps tuberculous patients of small means to obtain treatment in Switzerland. It is not available for any other purpose, and although the flight from the pound has its drawbacks, the Fund is carrying on as usual. The grants being paid in Swiss francs, the assisted patients get the same amount of help as they did, although no doubt their stay in Davos will cost them more this winter. Applications so far have been up to normal, although there have been one or two withdrawals on financial grounds. The decision to revert as far as possible to the one-house system will make things simpler for the Fund and those whom it helps. It may be recalled that when the Queen Alexandra Sanatorium was sold in 1922 and the proceeds devoted to grants in aid, arrangements were made to secure the Hotel Frei where each patient was given free medical treatment and nursing and a contribution towards the cost of board and lodging. This seemed to the officers of the Fund to provide the nearest possible approach to having a sanatorium of their own. The scheme was reluctantly abandoned when post-war prosperity in Davos made such terms unacceptable to the hotel, and from 1925 patients were given a choice of approved establishments with a block grant of two pounds a week towards expenses. Although the system proved popular, the loss of unified supervision and control was serious. It has now been found possible to renew the arrangement with the Hotel Frei where assisted patients are required to stay, with liberty to choose their own rooms. Last winter 42 patients were assisted to remain at Davos for an average stay of 150 days, the average grant being £43 per patient. Application should be made to the hon. secretary, Mr. A. Stanley Herbert, 25, Birchin-lane, London, E.C.3.

THE MEDELLIN ACCIDENT.

PROPHYLACTIC immunisation against diphtheria with toxoid, either alone, or with antitoxin in the form of toxoid-antitoxin mixture or floccules, is now an established part of the campaign against diphtheria. In the past a severe check has occurred each time a disastrous mistake was made by those responsible for the making of prophylactic. In 1930 an accident at Medellin in the State of Colombia. South America, was reported by cable in the daily press. Public health officials will be glad to have full details in a thesis by Dr. B. Ramirez, issued by the University Press of Antioquia (Colombia). In the previous three years an epidemic of severe diphtheria existed, for 30 per cent. of 485 notified patients died. Toxoid ("anatoxino") made in Medellin was injected at Las Salas Cunas into a group of children, who were Schick-positive; 0·5 c.cm. was given, followed by 1 c.cm. three weeks later, without special incident.

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[1] Amer. Jour. Surg., Sept. 1931, p. 524.

The third injection of 1·5 c.cm. was in error taken from a bottle of toxin; 16 of the 48 children died—three within 24 hours, 11 within 60 hours—of acute diphtheritic toxæmia, one eight days later, and another six weeks later of post-diphtheritic paralysis. The parents of the children during the night following the injection of the toxin were alarmed by extreme restlessness, convulsions, fever, diarrhœa, vomiting, and severe pain at the site of injection; the doctors next day noted dyspnœa and, in many, uncountable or imperceptible pulse. Antitoxin was given intramuscularly as soon as it was available, but in the confusion many of the children did not receive any until a number of the victims were dead; it is improbable therefore that serum can be credited with the recoveries. Almost the whole of the 48 children were ill temporarily; fever and convulsions were common, but within three to four weeks most of them were fit for discharge from hospital. One may conclude that these, in the five weeks since the first dose of toxoid was given, had fortunately developed sufficient immunity to protect them against part of the effect of the injection of 1·5 c.cm. of toxin, of which 0·004 c.cm. was the minimum lethal dose. The toxoid was of lower immunising efficiency than that commonly used. Our readers will make their own comments on a system which permitted the storage of toxoid and toxin in similar bottles in the same compartment of an ice-chest. Efficient control of all toxin made, the storage of it far from toxoid in different buildings or rooms, and the testing at the final stages imposed by the Therapeutic Substances Act provide a threefold defence against accidents of the kind in this country.

PSYCHOLOGICAL CLINICS FOR CHILDREN.

It is a testimony to the health and vigour of psychological medicine in this country that clinics for the treatment of child behaviour disorders and for juvenile delinquency are growing up in London and in the provinces. In 1928 the Child Guidance Council established a fully equipped and staffed unit at Tudor House, Highbury, having the support of leading physicians and psychologists. It has received the recognition of the London County Council and the Board of Education. Under the authority of the University of London, a course of vigorous training is now in its second year at the London School of Economics for the benefit of future social psychiatric workers who take a university certificate in social science. In 1927 the Jewish Health Organisation of Great Britain had established a child guidance clinic on similar lines, and has also received the encouragement of the L.C.C. and the Board of Education. The Quest Clinic for Difficult Children under the directorship of Dr. Margaret Lowenfeld which has already done good work, has now changed its name to the National Institute of Child Psychology. It proposes to establish a comprehensive and ambitious course of instruction for the training of doctors and social workers in this important branch of medical psychology. In addition, it proposes to issue certificates of proficiency to doctors and social workers and intends to spread its activities and authority throughout the country. The multiplication of psychological clinics is all to the good, and it is certainly not desirable that they should follow the same pattern. But in our view, it would be regrettable if each new organisation were to claim the right to issue certificates of proficiency and to decide who shall and who shall not be competent to direct work in child psychology. Medicine is already overburdened with degrees and diplomas. When these have the backing of a university or of an old-established corporate body, the public can be certain that the curriculum is well balanced and not too specialised. But the institution of certificates founded on a course which has no official sanction or support is perhaps premature, since the label conferred by such certificates will have no general value. A multiplication of labels, however, is likely to bewilder the public, and cause them to lose faith in a movement where there are many authorities with diverse credentials.

DYSMENORRHŒA AND DISABILITY.

Among over 7000 women clerks employed at the Home Office of the Metropolitan Life Assurance Company of New York so much working time was being lost because of dysmenorrhœa, that Dr. Ruth Ewing was appointed to make inquiries.[1] She decided to study the effect of exercises and the correction of bad posture or the incidence of the pain; the patients selected for treatment being girls who were frequently absent or spent several hours in the rest room during each menstrual period. A menstrual history was taken and the patients were referred to the physiotherapist for grading as to posture and instruction in the exercises considered suitable. They reported to the physiotherapy department once a week for one or two months, but in most of them improvement was not noticed within two to four months and it was found necessary to supervise the exercises for from eight months to two years. The very mild cases cleared up with the Mosher exercise alone, consisting of contraction and expansion of the lower abdominal muscles independent of breathing; but for the more severe cases other exercises had to be added. In response to a questionaire sent to each patient with a request for an anonymous reply, 90 per cent. stated that they had benefited by the treatment, while the obvious and practical results of the work are shown by a decrease by 53 per cent. in the time lost to the company. In summarising her paper, Dr. Ewing states that among other factors, constipation plays a large part in the ætiology of dysmenorrhœa, and it is interesting to compare this conclusion and several others with the results obtained by the Medical Women's Federation in their investigation into the menstrual function during the school period.[2] It was found by them that 55 per cent. of 6099 schoolgirls had no pain or disability at all during the monthly period. Of the remainder, 700 had only slight pain, while absence from school amounted to less than 2 per cent. The figures, however, showed a tendency to rise, both in the incidence of pain and the disturbance to general health, as the length of the menstrual history increased, and this prepares us for the figures obtained by Dr. Ewing with girls working at the Metropolitan Life Insurance office. Here it was found that for the 7390 clerks, 1151 days of absence and 2670 visits to rest rooms were recorded between June and December, 1927. In view of the good results obtained by Dr. Ewing from exercises and correction of posture it seems possible that the regular exercise, games, and drill which form part of the routine of school life helped to produce a more healthy condition of the body. It is of interest to record that in the Medical Women's Federation investigation a definite statistical relation was found between pain and exercise, although it could not be decided which was cause and which was effect;

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[1] Jour. Indust. Med., September, 1931, p. 244.

[2] THE LANCET, 1930, ii., 57.

Dr. Ewing's results suggest that exercise definitely benefited and decreased the incidence of pain. That the general attitude towards the menstrual period as a natural function should be a very important part of a girl's training was one of the conclusions reached from the Medical Women's Federation inquiry, and Dr. Ewing confirms this when she says that psychological factors such as self-discipline play a part in the treatment of dysmenorrhœa.

LYMPHANGIECTASIS AND CHYLORRHŒA.

ISOLATED and circumscribed lymphangiomata are a rare form of nævus which it is difficult to treat. Their ætiology is uncertain, but it presumably resembles that of the vascular types of nævus so common in the infant. Both varieties tend to grow with the child and on reaching a certain size to remain stationary, after which they usually persist indefinitely. The differences between lymphangioma and lymphangiectasis are not sufficiently emphasised and a case just reported by Ning[1] of Frankfurt should not be neglected. The patient, a woman of 34, was admitted to hospital in 1909 for a grouped vesicular condition on the internal aspect of the right thigh. She said it had been present since she was 11, and that regularly every fortnight a variable quantity (up to a litre) of white fluid had been freely discharged from the small blisters. This assertion was substantiated at the time, when it was found that a milky fluid could be collected at the approximate rate of 10 c.cm. in eight hours. She was again admitted in 1913 when it was further noted that the urine was often white—less so after a discharge from the vesicles in the thigh. Biochemical and microscopical examination proved this liquid to be chyle, and its quantity and appearance could be in some measure controlled by diet. Thus after a meal rich in fats and cream it would be milky and opalescent, while if fats were withheld it would become clear, or nearly so. In the course of a surgical attempt to relieve the condition, it was found necessary to tie two large lymph vessels which discharged their contents freely into the depths of the wound. At her third admission in 1931 there was a further increase in the number of vesicles and a considerable swelling, observed for three years, of the right leg. Lymphatic and chylous discharge is still present but not in such quantity as formerly, and soon ceases on elevation of the limb. Palpation of the two groups of vesicles elicits the sensation of fine crepitation. They are of two defined types, small vesicles and sac-like structures. Histologically, there is a general dilatation of the lymphatic system in the affected area, with cyst-formation on the surface. The description should thus be multiple lymphangiectasis with cyst formation and recurrent chylorrhœa. The ætiology as Ning says, is difficult. Most authors favour a purely mechanical cause leading to back pressure, but anatomical proof, even at autopsy, is wanting or inconclusive. In the case here cited Ning assumes a congenital error of communication between the lymph vessels of the right thigh and the chyle effluents from the mesentery of the same side. In support of this theory is the fact that the vesicles immediately below Poupart's ligament contained chyle from the earliest date of origin of the symptoms. According to Kaufmann the main chyle vessel empties itself into the left lumbar lymphatic trunk in 70 per cent. of all cases examined, but this finding does not invalidate Ning's view, for a junction between only a few lymph and chyle vessels would suffice to produce back pressure effects in the former. The points against a purely mechanical cause are two: first, that the lymphangiectases presented a centrifugal spread, and secondly, that the circumference of the leg remained normal and apparently withstood the hypothetical back pressure for 20 years.

URINARY CALCULI.

LITHIASIS was the subject discussed by a number of French urologists lately gathered at Vittel.[1] Prof. M. Loeper in an introductory paper on the causes of oxaluria and oxalate calculi pointed out that there are three possible sources from which oxalates may be derived: they may be taken with the food, they may result from fermentation in the intestinal canal, or they may be derived from the tissues. In any study of oxaluria the liver is of first importance since the condition often indicates disturbance of carbohydrate metabolism. That this is so is proved said Prof. Loeper by the fact that oxaluria is very commonly found in diabetics. In treatment attention must be paid to all these possible sources and the diet should exclude substances rich in oxalates, like rhubarb and haricot beans. Meat, he thinks, should be cut down—not so much because it is a protein as because it contains a large amount of sugar and from sugar may be derived oxalates. Exercise should be encouraged, and steps should be taken to ensure the complete oxidation of carbohydrates. Foremost among the remedies that help oxidation is insulin, and Loeper suggests that it may usefully be given in small doses even in non-diabetic cases. At the same time an attempt should be made to diminish the tendency towards precipitation in the kidney. Since precipitation of calcium oxalate is likely to occur in alkaline urine it is important to avoid giving alkalis in large doses and it is often useful to exhibit such drugs as acid sodium phosphate. Prof. F. Legeu, speaking on the indications for surgical intervention in cases of lithiasis, said that operation was desirable where calculus was associated with enlargement of the kidney, where stone was impacted in the ureter or where there was pyonephrosis. If stones were bilateral, operation was required for such symptoms as pain or marked hæmaturia. When a stone on one side had reached the ureter intervention was always necessary. In the less common case of a stone in a solitary kidney or in a horseshoe kidney, much would depend on whether the stone could be dealt with by pyelotomy or required nephrotomy. With a horseshoe kidney pyelotomy or partial nephrectomy was usually needed, the choice being made according to the effect of the calculus on the surrounding kidney. Prof. Merklen devoted his address to the treatment of lithiasis in children. After the fourth year of life, he said, two different classes of calculus were found, either uric acid and oxalate calculi or phosphatic calculi. A striking fact was that lithiasis was commoner in boys than girls. Very often there was a family history of stone and many patients showed signs of gastro-intestinal disturbance.

THE Semon lecture will this year be delivered by Mr. Douglas Harmer at 5 P.M. on Thursday, Nov. 5th, at the house of the Royal Society of Medicine, 1, Wimpole-street, W. His subject will be the Relative Value of Radiotherapy in the Treatment of Cancers of the Upper Air Passages.

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[1] Derm. Woch., Sept., 1931.

[1] Presse Méd., Sept. 5th.

SPECIAL ARTICLES

A CLINICAL DESCRIPTION OF EPIDEMIC SONNE DYSENTERY.

By Ronald E. Smith, M.B. Camb., M.R.C.P. Lond.,
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Bacillary dysentery, both chronic and acute, is gradually coming to be recognised as not uncommon in this country. The epidemic reported below, which was observed in detail, demonstrates practically every type of case which may be met with in the acute form. Although bacteriological confirmation was obtained in only nine of the 21 cases, the evidence that the rest suffered from the same infection is overwhelmingly strong. It is not my intention to enter into the controversy regarding the nomenclature of the various dysentery organisms. Suffice it to say that in all the specimens which gave a growth Dr. W. M. Scott, of the Ministry of Health, to whom I am indebted for very valuable help, reported it as *Bacillus dysenteriæ* Sonne.

Twenty-four cases, consisting of 20 boys, the housemaster, the cook, and two dormitory maids, occurred in one house which contained 58 boys, besides the housemaster, his wife, and a domestic staff of nine. I propose to give the case histories first, and discuss them afterwards. The mildness of several of the cases is no excuse for not reporting them in detail, because evidence will be produced that some of them at least were infections, and others probably would have been proved so if the vomit had been examined as well as the fæces.

The cases are reported in chronological order.

DESCRIPTION OF CASES.

Case 1.—Male, aged 17, was sick after his tea on July 15th and had diarrhœa the same evening, which was stopped by taking milk of magnesia. No abdominal pain nor tenderness. Fæces not examined.

Case 2.—Male, aged 16, vomited four times during the night of July 15th–16th, and had the mildest diarrhœa. No abdominal pain nor tenderness. Fæces not examined because at this stage there was little to suggest a bacillary infection.

Case 3.—Male, aged 14, could not accurately date the onset of his symptoms, but certainly had diarrhœa on the 16th. He felt sick on the previous day. He had on the average two diarrhœic motions per diem until the 23rd, and on no day had he passed a formed motion. On admission (23rd) he had a slight headache, a temperature of 100·2° F., pulse-rate 70. The next day he passed a normal stool, but the Sonne organism was grown from a loose motion he had passed on the 23rd. He was put to bed and thenceforward passed normal stools.

Case 4.—Male, aged 14, complained of nausea after lunch on the 16th, but did not actually vomit. No physical signs except temperature 100·6° F., pulse-rate 120. Was perfectly normal from the next morning. Fæces not tested.

Case 5.—Male, aged 15, complained of nausea at 7 P.M. on the 17th, and vomited once during the night. He complained of abdominal pain which he localised by placing the flat of his hand over his umbilicus. No tenderness. Temperature 100·2° F. His bowels were opened normally that morning, and continued to be so. Fæces negative.

Case 6.—Male, aged 19, vomited five times during the night 17th–18th, and was exhausted the next day and complained of pain in his lumbar muscles. Temperature 101·8° F., pulse-rate 70. An enema was necessary on the 19th as his bowels had not been opened for three days. Uneventful recovery. Fæces negative.

Case 7.—Male, aged 14, felt exhausted on the 17th, and had a stiff neck which persisted until the next day. He had one loose motion that day, two on the following, and one on the next (19th). No abdominal pain nor tenderness. Temperature never above 99° F. nor pulse-rate above 80. *B. dysenteriæ* was grown from a stool passed on the 18th. He was one of the early cases, and was allowed to get up on the 19th before the true nature of the infection was known. He was put to bed again on the 22nd, and passed one stool which contained considerable mucus. *B. dysenteriæ* was grown from this stool. From then onwards he passed perfectly normal stools, and got up on the 24th.

Case 8.—Male, aged 16, vomited twice during the evening of the 17th and had a little diarrhœa. Normal temperature. He felt quite well next day and did exams. Diarrhœa recommenced on the 21st, when he had three loose motions during the night. That day and the next he complained of vague abdominal pain between the umbilicus and the pubis. Temperature 102° F., pulse-rate 80. The next day he passed a motion with a little mucus, and the following day a loose normal motion. Fæces negative.

Case 9.—Male, aged 17, felt sick on the 18th and the next morning, but actual emesis did not take place. No constitutional signs. Fæces negative.

Case 10.—Male, aged 15, was sick at 4 P.M. on the 18th and five times during the night. No pain nor tenderness. Temperature 99° F. Bowels normal. Fæces negative.

Case 11.—Male, aged 17, had one diarrhœic motion on the 18th. He complained of headache on the 22nd. Temperature 100·6° F., pulse-rate 70. On the following day he had four light loose undigested motions containing mucus. He had no pain, but was tender over the sigmoid colon and cæcum. Fæces negative.

Case 12.—Male, aged 14, was admitted on the 18th complaining of wanting to go to stool. He had slight nausea. On the 17th he had one loose motion, and the following day had four diarrhœic motions. He had severe abdominal pain round the umbilicus. He was decidedly tender over the umbilicus, and over a gurgling palpable descending colon. The initial temperature of 102° F. gradually subsided. The pulse-rate quickly fell from 90 to 60. The next day he still had abdominal pain which was relieved by defæcation. On the 21st he passed one motion with considerable mucus, and a second streaked with blood. From then on he made an uneventful recovery. Fæces positive.

Case 13.—Male, aged 13, vomited at 2 A.M. on July 18th. Temperature 100° F., pulse-rate 80. No diarrhœa nor abdominal pain. Fæces negative.

Case 14.—Male, aged 16, vomited at 1 A.M. on the 19th, and twice during the night. Temperature 99·8° F. No diarrhœa. Fæces negative.

Case 15.—Male, aged 53, woke up in the early hours of the 19th with uncomfortable feeling in the abdomen, and had two diarrhœic motions before breakfast. This was the extent of his gastro-intestinal disturbance, but he felt seedy for two days. His fæces were negative.

Case 16.—Male, aged 17, felt nauseated on the night of the 20th. The next day he had three loose motions. On the 22nd temperature 101·6° F., pulse-rate 96. That day he had much blood and mucus in his fæces, and on the following day he had five motions which contained little mucus. His temperature remained high (100·4° F.), but the pulse fell to 70. From then on he recovered quickly. Fæces positive.

Case 17.—Male, aged 18, had a slight frontal headache on the 21st which lasted for one day. That day he vomited, and had diarrhœa with much mucus and streaky blood in his motion. Pulse-rate 120, temperature 104° F. The next day he had four diarrhœic motions. His tongue was slightly coated, and he perspired freely. From the 23rd onwards his pulse and temperature were normal, and he made an uninterrupted recovery. His fæces were positive.

Case 18.—Male, aged 16, vomited on the night of July 21st. He felt well the next day, but on the 23rd he passed a fluid stool containing a small amount of mucus. Temperature 99·4° F., pulse-rate 75. From then on he made a rapid recovery. Fæces positive.

Case 19.—Male, aged 17, felt like lead on the 21st. He had three motions that night. Temperature 104° F., pulse-rate 104. These fell to normal in two days. On the 22nd he had three very loose motions which could accurately be described as yellow peasoup (or lentil soup). On the 24th three more loose stools with considerable mucus were passed, and the next day he again had three motions, this time containing blood. Except for slight tenderness to the left of the umbilicus on the 22nd he had no physical signs, nor did he feel ill after the diarrhœa commenced. Fæces positive.

only after a couple of years. Dr. Uhlenhut (Bonn) stated that mortality from tuberculosis had decreased throughout Germany for several years past owing to the work of the advisory boards and anti-tuberculosis dispensaries.

The case is expected to last for three or four weeks.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

CHAIR OF CHILD LIFE AND HEALTH.

Dr. Charles McNeil, the first holder of the Edward Clark chair of child life and health, struck a new note in his inaugural address. The name of the chair, he said, had been well chosen, for it enlarged the scope of the subject and included both the diseases of children and the child himself. For the first time, the medical study of children becomes overtly preventive as well as curative. In sketching the methods of sound training in children's diseases and health, Prof. McNeil emphasised the need not only for ordinary clinical study of diseases in the hospital, but for training in the work now covered by the child welfare centres and special treatment centres. This applies to nurses, health visitors, district nurses, and nurse-midwives, as well as to medical students. The work of teaching in the new chair should include the special training of each of these types of nurse. The education of the parents must also be achieved by appropriate methods. Prof. McNeil, in his quietly delivered and unassuming lecture, showed in detail how he proposed to relate all these phases of child welfare institutions to the scientific teaching of the chair. This is essentially new as a programme and falls in with the proposals of the General Medical Council for a more adequate development of the preventive standpoint in medicine.

Despite improvements in sanitation and the diffusion of knowledge, said Prof. McNeil, there remained a great mass of disease among children, especially in the first two or three years of life. There were the fatal diseases and particularly these three—broncho-pneumonia, tuberculosis, and marasmus. There were the crippling diseases, such as infantile paralysis and again tuberculosis. There was the quite large group of mental defect, in which, from a variety of definite causes, and apart from heredity, there had been produced lifelong crippling of the mind. And there was a great deal of chronic ailing and nervous disorder which produced lasting impairment of health. By far the greatest part of this aggregate of sickness and death was preventable. The task of education of the people belonged to the doctor and the nurse engaged in medical practice. It was the immediate work of medicine to apply and improve its remedies for these diseases; but the greater and more hopeful work was to study and to teach the rules and conditions by which the health of the child was preserved.

BIOLOGY IN THE CURRICULUM.

Prof. J. Ritchie, of Aberdeen, in his inaugural address, said that the University has taken the bold step of breaking with the old tradition of the first year's curriculum for medical students. The long-established subjects of botany and zoology were to be replaced by a course in biology, dealing with the principles of life as a whole, and with the structures and habits of plants and animals which best illustrate those principles. This departure had been made after much consideration in an endeavour to improve the medical course, and he hoped that in gaining a knowledge of the underlying principles of life each student would gain something of real value to the understanding of the art and practice of medicine.

The position of biology in the curriculum has been under discussion for many years, but the proposed course is independent of the practical question whether the preliminary courses covered by botany, zoology, physics, and chemistry should, to a certain extent, precede the five years' curriculum proper or should be concurrent with it. On this question also Aberdeen University takes a line of its own. But the new course in biology involves the more fundamental consideration of the scientific groundwork of a curriculum.

CHILD GUIDANCE.

Scotland has now several child guidance clinics, and the latest has been opened at the Nôtre Dame Training College, Dowanhill, Glasgow. There the child will be studied from all angles—physical, emotional, intellectual, and environmental. The staff must include a psychiatrist, a psychologist, and a social worker. Children with definite organic disease, mentally defective or epileptic are already dealt with at special schools. The clinic will confine itself to the functional adjustments necessary to the individual as studied from the various standpoints. In the compound populations of our great cities, where various racial strains emerge, the proportion of cases needing such study is considerable.

SPECIAL SCHOOLS IN SCOTLAND.

The county of Lanark, where the veteran reformer Sir Henry Keith is chairman of the education committee, takes a leading place in the provision of special schools. As Robert Owen's infant school at New Lanark attracted world-wide attention in the early days of the nineteenth century, so the special schools of the county—if progress elsewhere had not been so great—might well make as strong an appeal in the twentieth century. The latest in this category is the Dalton Special School for Invalid Children. The cost is estimated at £26,000 for 230 children, and Dr. John Jardine, assistant secretary to the Scottish Education Department, says that he has never been in a school which, to his mind, approaches more closely the ideal. To-day in Scotland, he stated, provision was made for some 5000 children suffering from physical handicap and 3800 children suffering from mental handicap. These schools had a very great influence on Scottish education, modifying the system of education for the normal child. They made us realise the value of the open-air structure, the need for frequent intervals from intellectual effort, and the need for movement.

DUNFERMLINE RHEUMATISM CLINIC.

The medical welfare committee of the Carnegie Dunfermline Trust have made arrangements to hand over the apparatus of their orthopædic clinic at the baths to the managers of Dunfermline and West Fife Hospital. The trustees have also decided to provide a centre for the investigation of juvenile rheumatism at their school clinic. This centre will enable the medical practitioners to collaborate with a specialist in children's diseases. The scheme is meanwhile an experiment and its continuance will depend upon the experience gained in the early stages.

Incidentally, it may be said that the work of the Carnegie College of Hygiene has been materially altered. The men have been removed to Glasgow, where Dr. Alister Mackenzie, the late superintendent, has also gone. The College will be reserved meanwhile for the training of women. These changes really constitute a break-up of the unity that has marked for all these years the excellent work of the Dunfermline Carnegie Trustees.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

SIR HAWTREY BENSON.

You noted last week the death on Oct. 9th of Sir John Hawtrey Benson at his residence, Fitzwilliam-square, Dublin. Although 88 years of age—he was born on Feb. 28th, 1843—he was in excellent health and full enjoyment of life and faculties until about a fortnight before his death, when he was attacked by broncho-pneumonia. He was in a line of medical hierarchy, for his father, Charles Benson, held the chair of medicine in the school of the Royal College of Surgeons in Ireland, and was President of that College in 1854–55, and also one of the founders of and physician to the City of Dublin Hospital. The son was educated at Trinity College, Dublin, obtaining his medical degrees in 1865. He became a Fellow of the Royal College of Physicians of Ireland in 1873, and proceeded to the degree of Doctor in Medicine of Dublin University in 1874. In 1911 he was elected to the Presidency of the Royal College of Physicians of Ireland, and while holding that office the degree of LL.D. was conferred on him by the University of Dublin during the bicentenary celebrations of its School of Physic in 1912. Sir Hawtrey was for many years one of the physicians to the City of Dublin Hospital, but resigned that position nearly 40 years ago, being then appointed consulting physician. He also held for many years the post of medical adviser in Ireland to the Colonial Office. Of recent years he did not engage in practice, but maintained his medical interests, and kept in touch with a large circle of professional friends. A man of dignified presence with an old-world courtesy of manner, he was a man of wide culture, genuine kindliness, and most upright character. His wife died a few years ago, and there were no children.

MEDICAL FEES FOR GIVING EVIDENCE IN COURT.

Judge Davitt, of the Dublin Circuit Court, commented strongly from the Bench last week on the inadequate fees often offered to medical men for attendance at, and giving evidence in, court. He stated that his court could not carry on its work were it not for the coöperation of the medical profession, and he hoped that solicitors would recognise that fact, and that ridiculous fees such as a guinea and a half would not be offered to medical men for attendance in court. The present position is, indeed, almost intolerable. A medical man, who often has given his medical services gratuitously, as, for example, in hospital work, is compelled, by subpœna, to attend and give evidence in court for a fee of one guinea and a half and his bare travelling expenses. The attendance may occupy half a day or even longer. It is, of course, true, that should a solicitor require a report in advance the medical witness is in a position to make terms for suitable remuneration, but if the solicitor is willing, as often happens, to take his chance, the medical man is powerless.

MEDICAL WOMEN'S INTERNATIONAL ASSOCIATION.

(FROM A SPECIAL CORRESPONDENT.)

THE sixth council meeting of the Medical Women's International Association was held in Vienna from Tuesday, Sept. 15th, to Saturday, Sept. 19th, 1931, by invitation of the Austrian Medical Women's Association, supported by that of the President of the Austrian Republic and the burgomaster and municipality of Vienna. The meeting was followed by a three-day visit to Buda-Pesth, where members of the congress were entertained by the Hungarian Association of Medical Women. Some 200 members of the Medical Women's International Association attended the general meetings and scientific sessions, including 30 British medical women. Official delegates were present representing 18 different countries, including U.S.A., Japan, India, the Dutch and British East Indies, and the principal countries of Northern, Western, and Central Europe.

Scientific Discussions.

At the scientific sessions the subjects for discussion were: (1) The Rôle of Medical Women in Exotic Countries; (2) The Legal Protection of Women Workers. Dr. Margaret Balfour, president of the Indian Medical Women's Association, and Madame Poli-Garnier, of Algiers, were the rapporteurs généraux for the first question. Dr. Dagny Bang (Norway), Dr. Adler-Herzmark (Austria), and Dr. Sorrentini (Italy) acted in a similar capacity in respect of the second.

A questionnaire on each subject had been circulated some months previously to medical women with special experience in a large number of countries, the replies received were analysed and summarised by the rapporteurs, each dealing with those from a certain group of countries. The reports were printed and circulated to all members prior to the meetings. Discussion was opened by the rapporteurs, who gave a short résumé of the salient points and significant conclusions contained in their reports. Those who had sent in replies were afforded the opportunity of speaking to their papers briefly, if they so desired; the question was then thrown open to public discussion. This admirable method of procedure resulted in an extremely lively and well-informed discussion on both subjects.

The Rôle of Medical Women in Exotic Countries.—There was unanimity of opinion that a large amount of preventable illness and maternal mortality in exotic countries is due to the fact that the women are precluded by custom and religion from treatment by men doctors, and have not the facilities for consulting women doctors. The council unanimously passed a resolution emphasising the desirability of affording increased facilities for the treatment of native women by doctors of their own sex. A standing committee was appointed to go fully into the matter, and to consider what steps might usefully be taken to improve opportunities and conditions of work for medical women in exotic countries, in order to attract the best type of woman to that field.

Legal Protection of Women Workers.—This question proved to be much more controversial. Those countries where the workers are highly organised, the conditions of labour relatively good, and the standard of living high, were opposed to any differential legislation for women workers, on the grounds that it was in practice a restriction on their "right to work," and hampered them in the competition of the labour market without affording them compensatory advantages. A further point made by the opponents of such legislation was that it was nowhere based on any scientific data as to the relative ill-effects on men and women of the so-called injurious conditions. The supporters of differential legislation for women were all from those countries where there is a real danger of the exploitation of the workers of both sexes, and where the position of women is much less favourable than that of men. After prolonged discussion a media via was found, and resolutions were unanimously passed urging the necessity: (1) For the best possible legal protection of the health of the worker, irrespective of sex, including adequate medical inspection and examination in the case of all potentially injurious occupations. (2) For the provision of a special system of insurance for maternity.

The council also passed a unanimous resolution to the effect that the Medical Women's International Association uphold the principle that the appointment or dismissal of women medical officers should be based solely upon their efficiency, and that marriage per se should not be a bar to their employment.

The subjects chosen for discussion at the next congress were: (1) the effects of sport and physical education on women (with special reference to menstruation and pregnancy); (2) birth control.

Scientific Tours and Hospitality.

The official delegates had the honour of being received by the President of the Austrian Republic in the Rathaus. In the course of a cordial address of welcome he emphasised the great importance of international goodwill and mutual understanding for the preservation of world peace and the building up of international prosperity. An object which a congress such as that of the Medical Women's International Association was especially calculated to forward. He spoke warmly of the admiration and regard which was felt for medical women in Austria, and of his personal appreciation of the great part which medical women were playing all over the civilised world in the prevention and treatment of disease and suffering, and in the promotion of the future welfare of mankind. In the intervals of the scientific and business sessions tours were organised to visit the principal hospitals and institutions, including the excellently constructed and equipped municipal flats, complete with creches, restaurants, and kindergartens for the children of mothers obliged to go out to work. These admirable buildings undoubtedly represent the greatest advance yet made in the provision of accommodation for the working and poorer middle-classes.

The members of the congress were throughout most hospitably entertained, the social functions included receptions by the Viennese Association of Medical Women, by the French officers of the Medical Women's International Association, and by the Women's Club. The direction of the beautiful "Diana Bad" entertained them to luncheon, and to see the excellently equipped medical baths. They were given tea on the terrace of the hotel-restaurant of Cobenzl, on the slopes of the lovely Wiener Wald overlooking Vienna and the Danube. They were the guests of the spa of Baden, where they were entertained at a luncheon in the famous kur house, and a delightful whole-day excursion was arranged to the Semmering, the alpine health and pleasure resort some 50 miles from Vienna, where they were entertained at one of the leading sanatoriums.

From Vienna members proceeded to Buda-Pesth, where they were again warmly welcomed by the Hungarian Medical Women's Association, and entertained with the greatest hospitality. Facilities were afforded them for seeing the chief medical and social institutions of the city, as well as its many historical buildings and natural beauties. Special visits were paid to the famous springs which supply over 13,000,000 gallons of water daily.

NEW NURSES' HOMES.—Lord Derby recently opened a new nurses' home at Wigan Infirmary which has cost over £13,000. A building originally intended for the care of infectious cases occurring in Ipswich Mental Hospital has been enlarged and adapted as a home for 34 nurses.

MEDICINE AND THE LAW.

Successful Claim by Hospital.

IN a recent case, noted in the *Solicitors' Journal*, a county court judge had to decide what was the proper charge for a hospital to make for medical treatment in a private ward. The patient, a bank cashier, had asked to be placed in the private ward. The hospital charged him for 11 weeks' treatment at the rate of six guineas a week. He paid 50 guineas on account and was sued for the balance. In his defence he seems to have relied on two contentions. The first was in some sort an allegation of negligence. He said that he had been discharged from the hospital on one occasion against the opinion of the sister, that he had become delirious the same night, and that he had to be readmitted a month later. It may be assumed that the judge did not find any substance in this allegation as an answer to the claim; for judgment was eventually given in favour of the hospital for the amount claimed. The second line of defence was that the usual charge was only about three or four guineas a week, and that, if the patient had known he would be charged six guineas a week, he would have arranged to go elsewhere and pay less. In this class of case, as soon as it is established that the treatment was not meant to be gratuitous, the law assumes an implied contract to pay what is reasonable. The county court judge held that in the circumstances the charge of six guineas a week for a private room was not unreasonable. Judgment was given for the amount claimed by the hospital, the court ordering that £2 be paid monthly.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 10TH, 1931.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 34 (last week, 41); scarlet fever, 1840; diphtheria, 908; enteric fever, 36; pneumonia, 700; puerperal fever, 48; puerperal pyrexia, 107; cerebro-spinal fever, 26; acute poliomyelitis, 18; acute polio-encephalitis, 1; encephalitis lethargica, 9; continued fever, 1; dysentery, 11; ophthalmia neonatorum, 101. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Oct. 13th–14th was as follows:—Small-pox, 75 under treatment, 4 under observation (last week 87 and 5 respectively); scarlet fever, 1554; diphtheria, 1419; enteric fever, 19; measles, 125; whooping-cough, 363; puerperal fever, 12 (plus 10 babies); encephalitis lethargica, 219; poliomyelitis, 6; "other diseases," 153. At St. Margaret's Hospital there were 20 babies (plus 10 mothers) with ophthalmia neonatorum.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox or enteric fever, 7 (1) from measles, 3 (1) from scarlet fever, *16 (2) from whooping-cough, 32 (6) from* diphtheria, 47 (8) from diarrhœa and enteritis under two years, 33 (1) from influenza. The figures in parentheses are those for London itself.

Manchester reported 2 deaths from measles. Birmingham and Liverpool each 3 deaths from whooping-cough, Newcastle-on-Tyne, 2. Liverpool and Hull each 3 deaths from diphtheria, Ipswich, Birmingham, Manchester, and Blackpool each 2. Diarrhœa was credited with 7 deaths at Birmingham, 3 each at Birkenhead and Liverpool. Manchester attributed 4 deaths to influenza.

The number of stillbirths notified during the week was 252 (corresponding to a rate of 39 per 1000 births), including 53 in London.

POST-GRADUATE LECTURES

COURSES for former students were held last week at University College Hospital and the London Hospital. The following summaries continue the series begun in our last two issues. Mr. Eardley Holland and Mr. Norman Patterson spoke at the London, and Mr. Clifford White at University College.

STERILITY.

(MR. EARDLEY HOLLAND.)

UNTIL recently the routine treatment of sterility has been dilatation, curettage, and correction of uterine displacement. Some of this treatment has probably done more harm than good. We now realise that sterility depends on a combination of factors affecting both husband and wife. In every case we have to consider what local and constitutional abnormality may be responsible. Very often there is more than one.

It takes two to make a baby. Even conservative investigators say that in 20 per cent. of cases of sterility the male is to blame, and before doing anything to the wife—unless there is some obvious error—one should make a point of seeing the husband. After he has had a physical overhaul it will be necessary to examine the semen. Probably a condom specimen is best for this purpose, but massage of the prostate is effective. The normal number of spermatozoa is about 100,000,000 per c.cm. and a count of 60,000,000 or less indicates relative infertility. This would not matter much if the fertility of the wife was high, but where it is low in both partners there is likelihood of sterility.

Any septic focus or other cause of debility may diminish the number of sperms; so also will a diet low in protein and insufficient in vitamins. Endocrine disorders are of great importance and even a small amount of hypothyroidism may produce sterility. The same is true of pituitary defects. Speaking generally, we may do a lot of good by attending to the husband's general health and by insisting on exercise and a generous high-protein diet.

The old idea was that most cases of sterility in the female were due to narrowing of the cervical canal—the "pinhole os." During the last few years, however, we have come to understand the importance of blockage of the Fallopian tubes. This may be complete or it may only be a "stickiness" of the tubes in which the lumen is closed by delicate adhesions between folds of mucosa.

We now have means of testing the patency of the tubes. The first apparatus for this purpose was the one devised by the American, Rubin, who passes compressed air into the peritoneal cavity through the uterus. The sound of the gas escaping from the fimbriated extremities can be heard with a stethoscope, though it is doubtful whether we can say on which side it is passing. But this gas test, though a great advance, is not altogether satisfactory. It is mortifying to get a negative result on one occasion and a positive on another, and such errors are readily caused by stickiness or kinking of the tube, the latter due perhaps to retroflexion. Moreover, although Rubin's method shows blockage it does not show where it is, and this matters a great deal if there is any question of going on to operate. Surgery is almost useless unless the block is in the outer end of the tube.

The introduction of lipiodol has now made things much easier and it has become a simple matter to test the patency of the tube. An anæsthetic is not necessary; indeed, it is undesirable because it might mask pain. The patient receives one-sixth of a grain of morphia half an hour beforehand. She is placed in the lithotomy position and some 10 c.cm. of lipiodol are passed into the uterus through a uterine catheter to which a 20 c.cm. syringe is attached. A radiogram is then taken and if the tubes are patent the lipiodol will be seen running into the peritoneal cavity. Another radiogram may be needed on the next day.

This method shows whether the tube is open or closed, and, if it is closed, *where* it is closed. It therefore indicates whether operation is needed and whether it has a reasonable chance of success. Before making such an examination, however, one must be sure that there is no active inflammation of the tubes; for cases of peritonitis are not unknown where this precaution is ignored. Apart from this lipiodol is quite innocuous, and indeed a surprisingly large number of pregnancies have followed its use. This suggests that it has therapeutic value.

The constitutional causes of sterility in women resemble those in the male. All women who come to the out-patient department at the London Hospital complaining of sterility are put on a diet; they are told to eat the best English meat and supplement their meals with cod-liver oil. In the female, however, the most important development of late years has been our new knowledge of the ovarian hormones. The ovaries, it is now clear, cannot act without stimulation by the anterior pituitary gland. A great many sterile women are of the fat and flabby type with a great deal of hair, often with a male distribution. Menstruation has begun late and is probably scanty. If these women are given active preparations of thyroid and anterior pituitary extract the results are often miraculous. Pregnancy sometimes begins almost at once. I usually give half a grain of desiccated thyroid every night for one month and raise the dose by half a grain each month until the patients are taking two grains each night. They have a suitable dose of an active pituitary extract every night and morning.

In conclusion I may mention a type of sterility where absence of children is really due to frequent early abortion. Normally ovulation takes place about the middle of the menstrual cycle and thereafter the survival of the fertilised ovum depends on its being embedded satisfactorily in the decidua. The presence of suitable decidua depends in turn on the development of the corpus luteum. The kind of case I have in mind is one in which a woman goes perhaps 14 days over her usual time and then has rather a heavy period. I believe this sometimes represents a very early abortion due to failure in the function of the corpus luteum. If in such a case an extract of corpus luteum is given during the second half of the menstrual cycle, it is quite likely that the ovum will survive and pregnancy will go on to term.

COMPLICATIONS OF SUPPURATIVE OTITIS MEDIA.

(MR. NORMAN PATTERSON.)

ROUGHLY three types of mastoid processes may be found, those consisting of compact bone, those containing small cells, or those containing large cells, often with a still larger apical cell. Complications of suppurative otitis media depend on the type of the associated disease, the type of mastoid, the type of patient, and the type of infection. Acute otitis media may follow a common cold, a nasal sinus infection, influenza, or one of the specific fevers such as measles or scarlet fever. A streptococcus is the most dangerous infecting organism, and unfortunately it is very frequently present. In diagnosing mastoiditis it is not always possible to be guided by the temperature and pulse, since the febrile signs may be due to the pre-existing general condition.

Early Signs.—Tenderness over the mastoid must not be regarded as an important diagnostic sign of mastoiditis in the early stages; in acute otitis media slight tenderness in this region is more often present than not. Tenderness persisting or increasing or tenderness appearing late, from the seventh to the tenth day, are valuable signs however. With suppurative otitis media, pus is probably always present in the antrum, and if found in this cavity at operation the discovery does not mean that the operation was necessary. The drum should always be examined; in mastoiditis the appearance is on very rare occasions normal, though there is nearly always a history of earache which has cleared up. In early otitis media inflammation is first seen near the upper attachment of the drum, and this tends to spread over the whole surface of the membrane, which bulges and will usually perforate unless paracentesis is performed. A perforation high up near the periphery of the drum is more commonly associated with mastoiditis than a central perforation. Inflammation of the posterior superior meatal wall does not in itself indicate mastoiditis. Early paracentesis should always be performed and generally prevents the development of mastoiditis; it is much simpler and safer than a mastoid operation. Signs of severe mastoid infection are œdema, persistent tenderness over the process, and displacement of the pinna forward and downwards; pure forward displacement is more often associated with furunculosis. Direct pressure over the process produces pain in mastoiditis, while in furunculosis pain is felt when the pressure is so applied as to displace the pinna. Even cases of obvious mastoiditis are sometimes seen to recover when consent for the mastoid operation has been withheld. Occasionally an infected mastoid will perforate into the neck under the sternomastoid muscle; drainage must be secured at operation by thrusting a pair of sinus forceps beneath the muscle-fibres. In association with otitis media an abscess may sometimes occur in the cells at the root of the zygoma. This will give rise to a swelling under the temporal muscle causing tenderness and swelling in the region of the zygoma, and difficulty in opening the mouth; the cells should be opened up when the mastoid operation is performed.

Complications.—Extradural abscess may unexpectedly be found as a complication of mastoiditis and on opening the skull the dura may be covered with granulation tissue. If possible bone should be removed in every direction till healthy dura is exposed. Extradural abscess may simulate cerebral abscess or, if situated in the posterior cranial fossa, cerebellar abscess. With extradural abscess in the posterior fossa there is danger of involvement of the lateral sinus; the abscess tends to track along the sinus wall and eventually inflammation leading to septic thrombosis may arise in the vein itself.

Cerebral abscess may be very difficult to diagnose, especially if it is small and encapsulated and producing no localising symptoms; it is much more common as a complication of chronic suppurative otitis media. Headache when present may be localised or general, and is sometimes so slight that the patient scarcely complains. Symptoms may be ushered in by a rigor; very often when seen the patient presents no symptoms of brain abscess, but he may show signs of general ill-health, loss of appetite, and so forth, which might be produced by suppuration anywhere. Later he may develop a weakness of the facial muscles on the opposite side to the abscess, and some paresis affecting the opposite arm; true contralateral paralysis is extremely rare. Absence of the abdominal reflexes on the opposite side of the body and even a positive Babinski's sign may be found if the abscess is well developed, and a large pupil, due to compression of fibres going to form the third nerve, may be found on the same side as the abscess. The capacity for naming objects in a right-handed patient with an abscess on the left side is sometimes interfered with, although failure may not occur until a great many objects have been tried. General signs are mental lethargy, loss of sustained attention and memory, and sometimes a tendency to break off a conversation in the middle. The patient may suddenly fall asleep in his chair.

Where a cerebellar abscess is present the patient may show weakness in the limbs of the same side of the body. If he is asked to hold out his arms horizontally the hand on the same side as the abscess tends to sink; his sense of position may be affected, so that if he is asked to copy the position of one limb with the other, with his eyes shut, he finds it impossible to do so. If asked to walk in a straight line he deviates towards the side of the abscess, and on standing with his feet together and his eyes closed he falls towards that side, whatever the position of his head; this serves to distinguish the condition from labyrinthitis, in which the direction in which the patient falls is determined by the direction in which his head is turned. Nystagmus may be present with a cerebellar abscess and the patient often finds it difficult to sustain the position of his eyes when asked to look towards the side of the abscess. Headache may be severe and is often occipital, though it may extend forward to the frontal region.

Lateral sinus thrombosis is uncommon in acute otitis media and is much more likely to occur with chronic otitis media complicated by polypi and cholesteatoma. A rigor often occurs at the outset, associated with a sudden rise of temperature; the differential diagnosis is from typhoid, miliary tuberculosis, pneumonia, malaria, malignant endocarditis, and sometimes jaundice. About 75 per cent. of patients will recover if the operation is performed in time.

Meningitis is commoner as a complication of suppurative otitis media in children than in adults; it is localised in the early stage and prompt treatment may sometimes save the patient, but the spread is sometimes extremely rapid. Operative treatment in these rapid cases is not likely to save life. On lumbar puncture cerebro-spinal fluid escapes under pressure, and shows an increase of polymorphs and of protein, and a reduction of sugar and chlorides. If the foramen magnum is obstructed the fluid withdrawn on lumbar puncture may be normal.

PERINEAL TEARS.

(MR. CLIFFORD WHITE.)

PERINEAL tears are common accidents of labour, but the frequency with which they are found depends on the care with which they are sought, the skill of the obstetrician conducting labour, and certain outside factors which will be mentioned later. A tear of the perineal skin is easily seen, but a tear of the vagina will pass unnoticed unless it is actively looked for. For this purpose a spring retractor which will separate the vaginal walls is very useful, and may also be employed when it is necessary to stitch up a tear of the posterior vaginal wall; a bayonet retractor is more convenient than a Sims speculum for the discovery of vaginal tears. The skill of the obstetrician plays a part in the avoidance of tears. At Queen Charlotte's Hospital I have noticed a tendency among students delivering normal cases to allow the head to extend before the subocciput is really under the pubis. The result is that the larger occipito-frontal diameter is delivered instead of the suboccipito-bregmatic, and the danger of laceration is increased.

Outside factors affecting the frequency with which tears are seen are to be found in faulty presentations. Antenatal care makes the correction of some of these possible, but a breech presentation with extended legs or arms in a primigravida inevitably results in laceration. In my opinion episiotomy is indicated in such cases. The direction of the cut should be half-way between the anus and the ischial tuberosity; hæmorrhage is seldom severe and can usually be controlled with a pair of Spencer Wells forceps. It is true that by using episiotomy one may make a cut larger than the laceration would have been, but against this must be set the readier healing of a clean cut, and the avoidance of a complete tear of the perineum. Bilateral episiotomy is rarely necessary.

In suturing the perineum thread and silk should not be used; they commonly lead to sepsis and failure to heal. Silkworm-gut is preferable and should be tied loosely—if anything, too loosely. Tight ligatures are liable to cut out on the development of reactionary œdema. Rubber tubing may be threaded over the gut to prevent the sutures cutting into the perineum. For the first few days a dry dressing is used, but if the tissues are swollen round the stitches on the second or third day hot fomentations wrung out in hypertonic saline will usually give relief. If the stitches cut out the patient may become feverish with a rapid pulse and symptoms of sepsis, in which case the general condition outweighs the hope of local repair; the stitches must be taken out and free drainage encouraged. In some cases, however, although the stitches become infected, the temperature and pulse remain normal and puerperal sepsis need not be considered; in these patients it is safe to leave in the stitches until the seventh day, giving morphia if necessary for pain. A certain amount of union will probably result and the rest of the laceration may heal by granulation. Where the stitches have to be removed we are confronted with a different problem. If we decide to do a flap-splitting operation, later, the patient must go about with a patulous vagina for some months, and there is the additional disadvantage that a subsequent labour will tear through the scar tissue; as a result we often postpone operation until further pregnancies are unlikely and the woman spends the best years of her life in a partially disabled condition. In any case a flap-splitting operation cannot be performed under 8 or 12 weeks from delivery, and the patient feels dissatisfied at being asked to submit to another anæsthetic so soon after returning to her usual routine. An attempt at secondary suture during the puerperium is therefore desirable whenever the condition of the patient warrants it. The laceration, after the original sutures have cut out, should be plugged with peroxide gauze until all sloughs disappear and then with lotio rubra, or some other simple dressing, until granulations begin to form. Operation cannot well be put off longer than the tenth or eleventh day. The patient is given a purge so that her bowels are well opened the day before the operation and she can be kept constipated for several days afterwards. She is anæsthetised, and all granulations and any squamous epithelium which has grown in from the vagina are scraped away with a sharp spoon. Silkworm-gut sutures, about half an inch apart, are passed through the tissues including the levator ani, and close apposition of the surfaces of the laceration is secured. The vaginal epithelium is brought together with a continuous catgut suture to prevent the formation of a gutter which might retain lochia. No douches are used, but the patient is placed in Fowler's position and an iodex pessary may be inserted to calm down any sepsis.

Where the tear of the perineum has been complete healing does not readily follow casual suture after labour; it is much better to leave the patient for 12 hours and approach her freshly next day. A few heal successfully upon primary suture, but it is worth while attempting secondary suture if the first stitches break down, since otherwise the unfortunate patient must spend some months with incontinence of fæces. A purge must be given 36 hours or more before operation, so that no fæces will be coming down while the repairs are being performed; an enema on the morning of the operation must be avoided for the same reason. As in the case of a partial tear, the laceration is treated previously with hydrogen peroxide and lotio rubra. At operation all granulations are scraped away with a sharp spoon and it is as well to make a small incision with a sharp knife at the apex of the tear to divide the vaginal epithelium from the rectal mucosa; if these two are not thoroughly separated it is difficult to get union. The rectal mucosa should be repaired first, and for this purpose I use the finest possible silkworm-gut, placing the sutures about a quarter of an inch apart; it is wise to tie each of these separately leaving long ends which will hang below the anus. The sphincter I repair with catgut, and it is worth while putting a continuous catgut suture down the whole length of the laceration in the rectal mucosa to make it water-tight. The vaginal epithelium is repaired with catgut, and the apex of the tear should be made especially firm, for this is the common site of recto-vaginal fistula. The sphincter should be reinforced by one suture in the perineal body.

Constipation should be maintained for six or seven days after the operation. Those who object to this plan can give small saline purges daily, but no attempt must be made to combine the two methods. If the patient is kept constipated until the fourth day and then given a purge the large resultant motion will break down the stitches. An enema any time during the first week is equally dangerous. Irrigation of the vagina through a soft rubber catheter cannot do any harm, and I believe iodex pessaries are of some use. The stitches can be removed after about a week, but an extra day or two is valuable if the patient's condition is good. An anæsthetic is necessary for removal of the sutures, which must be performed slowly and carefully.

CORRESPONDENCE

DIPHTHERIA BACILLI.

To the Editor of THE LANCET.

SIR,—Dr. Chesney's letter calls for some statement from my colleagues and myself on the points which he raises. The bearing of the existence of two distinct types of diphtheria bacillus on the value of antitoxin and of prophylactic immunisation with toxoid obtained from Park-Williams-8 strains is not yet clear; in our original publication we purposely refrained from discussing it. In view, however, of your correspondent's queries, it may be well to state briefly the possible significance of our observations.

The chief difference between the strain which we have designated *gravis* and bacteria like Park 8, which we find to have cultural characters intermediate between those of *gravis* and *mitis*, is that 24-hour cultures of Park 8 do not readily kill experimental animals unless administered in considerable amounts; whereas the *gravis* strains, or at all events many of them, kill the experimental animal when quite small amounts of 24-hour cultures are inoculated. That is to say, *gravis* strains are highly virulent, Park 8 is not. When however we turn to toxin production in cultures, it is found difficult to obtain potent toxin from *gravis* strains. There is here an obvious difficulty in determining experimentally whether Park 8 antitoxin is entirely appropriate to *gravis* toxin. It is hoped that this difficulty will be overcome by alterations in method of toxin production, and investigations with this purpose are in progress

It can be said definitely, however, that considerable doses of commercial antitoxin, used as prophylactic, protect guinea-pigs from subsequent injection of lethal doses of *gravis* strains. It would therefore seem probable that there is sufficient antigenic similarity between the different varieties of diphtheria bacillus to make it likely that the prophylactic administration of Park 8 toxoid will protect against infections by *B. diphtheriæ gravis*. The failure of large doses of antidiphtheritic serum to control grave cases of diphtheria, which has been reported recently from so many different quarters by observers whose competence cannot be seriously doubted, must mean either (1) that the bacilli of *gravis* type, which in our experience, at Leeds, have been responsible for all such cases, produce so much toxin in the tissues that adequate dosage of serum is not administered; or (2) that they produce a type of toxin to which the Park 8 antitoxin is badly adapted, although capable of neutralising it if present in excess. It is possible that the antitoxin treatment of diphtheria has partly miscarried, because it has been assumed too readily that the toxic elements in filtrates of cultures which most affect the guinea-pig are also those most dangerous to man.

We hope to be able presently to form an opinion as to the explanation of the discrepancy between laboratory results and much of the recent clinical experience with diphtheria antitoxin. Progress in this work has till now proved difficult.

I am, Sir, yours faithfully,

JAMES WALTER MCLEOD.

The School of Medicine, Leeds, Bacteriology
Department, Oct. 19th, 1931.

MECHANISM OF PULMONARY COLLAPSE.

To the Editor of THE LANCET.

SIR,—Absence from town and the commencement of the session prevented an earlier reply to the criticisms of Dr. Barclay and Dr. Stanley Melville and to the question of Dr. Blyth Brooke in your issues of Sept. 12th and 19th. I think that neither of the first two has grasped the important point that natural breathing is entirely different from forced inspirations and expirations. The latter do not occur under normal circumstances. My work has all been done as far as possible with the view of excluding conscious respiration and reproducing the natural conditions of the patient. Therefore their criticisms have little bearing on the subject of collapse as occurring in the patient in bed, and, further, the important point is not the degree of excursion but the level of the diaphragm.

I can assure Dr. Barclay that, with quiet unconscious breathing, the diaphragm does assume a higher level in the supine or reclining position than in the erect. Although a voluntary forced diaphragmatic inspiration induced in a patient breathing quietly will cause the diaphragm to descend to approximately the same level both when standing or lying, yet the descent in the supine posture will be greater than that in the erect posture, demonstrating that the level of the diaphragm is more elevated when supine. The elevation is more marked in those whose chests tend towards the type of the emphysematous, and least marked in those whose tendency is to visceroptosis. I agree with his remarks as to indicators attached to the skin. The criticism does not apply when the base of the indicator is taken at the lower level of the costal margin.

Dr. Melville's second objection referring to the transillumination on the affected side after phrenic evulsion is also the result of observations in forced inspirations, which I must reiterate are totally abnormal. When he remarks that "the theory of temporary blocking of a bronchus, with which we are all familiar, must take pride of place," I would reply that, although obstruction by a foreign body to a bronchus may cause deflation, in the cases which I have investigated no such block has been found at autopsy, and in life the usual associated symptoms have been absent. It is impossible to do more than demonstrate this in the post-mortem room, and to show clinically how rapidly the signs of deflation can disappear without any other demonstrable evidence of the unblocking. Blocking of a bronchus cannot explain the varying distribution and degrees of deflation.

Dr. Blyth Brooke asks me for an explanation of the physical signs accompanying the massive collapse attack, associated with pyrexia indicating infection, which I hold to be the result of the onset of pleurisy. The explanation of these signs has always been a stumbling block. I would put it as follows:—

> The patient, lying in bed after operation with respiratory changes at a minimum, has both lower lobes deflated. The lower intercostals and abdominal muscles are lax, the diaphragm high on both sides. The onset of pleurisy produces (as in other cases) elevation and fixation of the corresponding half of the chest in the upper part by the scalenes and upper intercostals, fixation of the lower chest by the lower intercostals, lateral abdominal muscles, and sometimes the transversalis and triangularis. The diaphragm remains high and inactive on the affected side. At this moment the patient, to carry on respiratory changes

left with the upper lobe of the opposite side. This is ufficient to account for the dyspnœa *and cyanosis. The* ext stage is to bring into action the lower lobe on the naffected side. This involves a change from inactivity *t a high level* to activity in a lower plane by the underying half of the diaphragm and, I think, accounts for a onsiderable amount of the distress. When the *respiratory* uscles on the unaffected side have come into action, the ffected side remaining inactive, the lung on the sound ide becomes over distended and will tend as far as ossible to displace the mediastinum to the opposite side. he superficial cardiac dulness on the affected side is ncreased by retraction of lung, but on the unaffected side s diminished by over inflation. The condition is different *rom that which* occurs in pneumonia, where at the commencement of pleurisy the affected lobe is not deflated, nd there is no violent change in the muscular mechanism, he individual has not been in the quiescent condition of he post-operative patient.

I hope I have now made clear the essential point hat in the post-operative cases of deflation the mportant factor to realise is that respiratory changes re at a minimum, and there is accordingly no analogy vith the movements which occur in forced respiration, r when the subject is standing on his head. Accordngly the radiologist's slogan "take a deep breath" nust be interdicted.

I am, Sir, yours faithfully,

CHARLTON BRISCOE.

Harley-street, W., Oct. 14th, 1931.

ENLARGEMENT OF THE PROSTATE.

To the Editor of THE LANCET.

SIR,—Mr. William Robinson rightly calls attention o the fact that the view advanced by me in my unterian lecture of 1922 that enlargement of the rostate is a form of fibro-epithelial degeneration nalogous to that found in the female breast at the enopause was the same as that held previously by r. F. T. Paul and published in 1910. In the correpondence in your columns that followed my lecture paid tribute to Mr. Paul and explained my apparent ack of courtesy in not referring to his work by tating that although I had made an exhaustive tudy of literature before preparing my lecture I ad not come across Mr. Paul's writings on the ubject. The fact that my conclusions and supporting rguments were so precisely similar to those previously dvanced by Mr. Paul, and that these conclusions nd arguments had been reached independently by wo workers who had never met or read each other's writings, in my opinion adds greatly to their value. y object in writing this letter is to correct the mpression that I, in any way, lay claim to having riginated the theory of fibro-epithelial degeneration. t is an idea that has occurred to more than one mind and all that I did in my Hunterian lecture of 1922 was to bring forward in its support all the evidence hat I could collect.

I am, Sir, yours faithfully,

KENNETH WALKER.

Harley-street, W., Oct. 15th, 1931.

SHOULD HIGH BLOOD PRESSURE BE REDUCED?

To the Editor of THE LANCET.

SIR,—The paper thus entitled by Dr. I. Harris and Dr. C. L. G. Pratt in your issue of Sept. 19th (p. 629), is of great interest and importance. In their series of 22 cases of high blood pressure put upon a standard diet, the intramuscular administration daily of 3 c.cm. of collosol sulphur (Crookes) was followed by a considerable lowering of the average systolic pressure. (They mention that in some of the cases they used erythrol-tetranitrate instead of the sulphur, but do not state the dosage.) The *patients* were watched for the first week without any medication, were given the sulphur daily in the second, and were again studied in the third after the drug had been discontinued. During the second week, when the sulphur was being given, the average pressure was 19 mm. Hg lower than during the first. In this second week the average non-protein nitrogen (N.P.N.) rose from 37·4 to 43 mg. per cent. and the *sodium* chloride, phosphates, and blood-urea all increased, while the alkaline reserve fell. All this with a decreased output of urine.

The writers argue from the above (fallaciously to my mind) that "it is not desirable to administer pressure-reducing drugs as routine treatment in cases of hypertension." At first sight this might seem reasonable, but a study of the cases in the third week when no drugs were being given shows that although the average pressure was still about the same as during the week of administration—160 as compared to 158 (no doubt the sulphur was still acting), the average N.P.N. had fallen to 39·3, which is nearly as low as it was before the sulphur was given (37·4) when the average pressure was 177. Surely one may assume that the rise in the N.P.N. and other substances in the blood was due, not to a lowered blood pressure directly, but to a decreased efficiency of the kidneys from damage by the sulphur. It does not at *all* follow that, because there was an accumulation of undesirable materials in the blood following the use of sulphur, there would be the same retention from every other drug that happened to lower the blood pressure.

As regards the general question of whether or no high blood pressure should be interfered with, a great deal depends upon the nature of the individual case. Drs. Harris and Pratt do not state the probable cause of the rise in pressure in their cases. Were they cases of nervous, toxic, or organic origin? They only criticise the use of drugs for the lowering of the pressure, and probably would agree that every case should be attended to as regards rest (physical and especially mental), diet, and elimination. They might also think that in urgent cases a timely venesection may avert catastrophe—and with this I would heartily agree. But if in a given case all such measures have been tried and yet the pressure remain too high, especially if there be symptoms present, such as headache or dizziness, then the question arises whether or not the pressure should be reduced within safer limits by the use of drugs. In my opinion such therapy is sound and should be used tentatively; if the patient feel better as a result, which is usually the case, then we are taking a strain off the circulatory apparatus which may at any time precipitate a cerebral hæmorrhage or acute heart failure. If the patient does not feel so well—and many require the high pressure to compensate for some abnormality—then it is the optimum pressure for him and should not be again interfered with.

I have not used collosol sulphur (Crookes) for the lowering of blood pressure, but can vouch for the value of sodium sulphocyanate in this respect. If it be used in doses not exceeding 15 g. daily—and half this amount is usually sufficient—the pressure can generally be lowered considerably and this without any untoward effects except, in extremely rare instances, a dermatitis. Some prefer the potassium salt. It remains to be seen whether the blood chemistry be adversely affected along with the lowering of pressure by this means (and we are at present studying this point in the department of therapeutics in the University of Toronto), but even if it be so it seems to me that we are justified in trying, and even should try, some such medicinal remedy when the pressure is too high and does not yield to environmental, dietetic, and other measures.

I may summarise these remarks as follows:—

1. Collosol sulphur while lowering the blood pressure produces certain adverse changes in the chemistry of the blood and apparently lessens the efficiency of the heart muscle, but it by no means follows that these effects are due to the lowered pressure. They probably arise from damage to the kidneys.

2. In cases of hyperpiesis, when the environment, diet, &c., have been regulated and still the pressure remains too high, it is good therapy to attempt to lower it, always watching the effect on the well-being of the patient. In my experience sodium sulphocyanate is a satisfactory drug for this purpose.

I am, Sir, yours faithfully,

Toronto, Oct. 6th, 1931. R. D. RUDOLF.

THE NATURE OF VIRUSES.

To the Editor of THE LANCET.

SIR,—In your leading article (Oct. 3rd, p. 751) on Dr. Dale's address to the Physiological Section of the British Association appear two or three statements which seem to me misleading. The arguments drawn from them as to the living or organismal nature of such viruses do not therefore really support this conclusion. In the first place, as regards the comparison with a gene; a gene may be associated with the transmission of a particular character, or set of characters, but it *cannot* exist alone, still less can it reproduce, of itself, the entire cell-organism. It takes a host of genes to do this. And the minute, probably actually ultra-microscopic particles which represent, or indicate the virus (in the case of the filtrable ones), would have to include, if they were alive, the entire potentialities of a living organism. Now a molecule of hæmoglobin, one of the largest definitely known, is very far from being a molecule of living protoplasm—and some of these virus particles are said to be smaller than this.

With regard to the autogenous origin of viruses, which Dr. Dale apparently thinks is regarded as one of their characters by those who consider them to be enzymes (by autogenous I take it he means the capacity of a cell to produce one of these abnormal or pathogenic principles spontaneously), I do not know that anyone has claimed this as a constant character of all viruses. At times, apparently, a bacteriolysin does arise in such a spontaneous manner. My own view[1] is that, if these viruses are the product of abnormal cell-metabolism, such an autogenous origin cannot be ruled out as an impossibility. I think myself that the Rickettsia bodies of typhus fever and other similar bodies may be developed spontaneously in the louse or tick, under certain conditions upsetting the digestion. Others, however, perhaps most, having once originated in some such manner, may now be maintained by the affected cells—i.e., redeveloped by them only in response to the irritant stimulus of the same virus, with which the organism has become "infected." Dr. Dale may, as you say, have little sympathy with this view, but it is a sine qua non of the enzyme theory, and I believe that most bacteriologists who hold the bacteriolysin view of the bacteriophage accept it, even if faute de mieux. Cases of this kind would of course behave, in regard to their manifestation, like bacterial infections.

I should not myself regard a spontaneous origin of rabies as out of the question, under certain circumstances. I remember, when I was in Palestine, there was an idea that the wolf was the "latent" source of the virus, and that dogs were bitten by them and in turn caused human cases. I regard this disease as a definite example of abnormal hæmetaboly and one cannot say what effect on cell-metabolism extreme environmental changes, such as temperature or fasting, may have.

I am, Sir, yours faithfully,

Oct. 4th, 1931. H. M. WOODCOCK.

DR. PAUL WHITE ON "HEART DISEASE."

To the Editor of THE LANCET.

SIR,—There are several statements in the review of my book (Sept. 5th, p. 537) that should be challenged.

In the first place, there is the criticism that the book goes into too great detail with a resulting lack of perspective and that the arrangement is too systematic. These characteristics of the book are considered as faults rather typical of American medicine but rather they may more justly be considered to expose faults in much of the English medical literature of the past, that is, a lack of system and too little attention to essential details. Many times apparently well written essays in medicine have been hopelessly inadequate for study and reference because of their omissions in these respects. Comprehensiveness is essential in the kind of book that I have written and I have realised the need of at least making mention of facts even though they are relatively unimportant. My attempt to allot space reasonably to the various topics is indicated by comparing the subject matter in the book on angina pectoris and on gout, two subjects which have been cited by the reviewer himself. Certainly angina pectoris is so much more important than gout in its relationship to cardiovascular disease that it deserves 20 pages as contrasted to two lines and yet in the whole field of cardiovascular disease much more space cannot rightly be allotted even to angina pectoris in one volume. Expansion of the work into two or three volumes would at once defeat its purpose, namely, that of supplying within reasonable compass for the medical student and practitioner a survey of the field of heart disease. If I had spent more time on the subject of gout I might well have been accused of emphasising unduly an unimportant point with lack of perspective. Incidentally the chapter on Cardiovascular Roentgenology which pleased the reviewer has not a bit less detail in it than any other part of the book.

The reviewer states that I referred on page 127 to the disappearance of the Korotkow sounds as the diastolic end-point. My actual statement was as follows:

> "The diastolic pressure is usually recorded at that point at which, during decompression, the sounds and murmurs cease. Certain qualifications must here be added."

A pertinent qualification appears on page 128, second paragraph, and reads as follows:

> "In the case of the determination of the diastolic pressure by the auscultatory method one further source of difficulty

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[1] See THE LANCET, 1930, i., 211.

and error exists. In the case of marked aortic regurgitation or peripheral vasodilatation it is frequently possible to hear a distinct sound, coincident with the pulse, on auscultation over the brachial artery below the blood pressure cuff during decompression, even down to zero pressure. This sound is related in the same cases of marked aortic regurgitation or vasodilatation to the arterial pistol shot sound found on auscultation over the great arteries when slightly or moderately compressed with the stethoscope. The fullness of pulse that occurs in such cases produces the sound of a shock and vibration (the water hammer effect) by suddenly striking the fluid column ahead of it and distending the walls of the blood-vessel which is relatively, but not absolutely, empty and collapsed at the end of diastole. It does not indicate that the diastolic pressure is zero. The true diastolic pressure, often very difficult to measure in these patients, is that pressure level at which the sharp arterial sound abruptly gives way to a much duller sound, which continues to be heard usually down to zero pressure. The diastolic pressure is always low in such cases, from 20 to 50 millimetres of mercury. The oscillometric method helps especially to check the auscultatory method in establishing the true diastolic pressure under these conditions."

The reviewer suggests that I have adhered too much to the older classification and have been lured back from time to time to the camp of the anatomical die-hards. I have distinctly stated that I believe neither in the old point of view nor in the recent so-called modern point of view which is now passing, the first over-emphasising pathology and the second neglecting pathology. Most assuredly valvular defects are a strain on the circulation even though everyone will admit of course that abnormal rhythms such as auricular fibrillation are also of great importance. My insistence through the book has been that we should pay attention to all three phases of the diagnosis of cardiovascular disease and not neglect any one phase. The three phases forming the tripod of cardiovascular diagnosis are ætiology, structural defects, and disorders of function.

It seems to me very unlikely that the reviewer represents adequately the modern school of cardiovascular students and practitioners in England, nor do I believe that there is such a gulf between American and English physicians that it cannot be bridged occasionally by a book that may be helpful on both sides of the sea.

I am, Sir, yours faithfully,
PAUL D. WHITE.

Massachusetts General Hospital, Boston, Mass.,
Oct. 9th, 1931.

*** We are happy to publish Dr. White's comments on our review of his valuable book, but would point out that nowhere in it is there a suggestion that an exposition of American views would not be valuable to British medicine. Indeed, the reverse is suggested. —ED. L.

MOTIVES AND MECHANISMS OF THE MIND.

To the Editor of THE LANCET.

SIR,—Having lately been on holiday I have not been able until now to send you some comments which have been in my mind on the first volume of your post-graduate series, "Motives and Mechanisms of the Mind."

You will forgive me I hope for writing at some length, for the book interests me as another stepping-stone upon which psychology is entering the paths of general medicine. Such a book helps us to try at least to understand our neurotic patients, and it is not simplified as so many books are to the point of stupid simplicity, but presupposes some intelligence in the reader.

We have hitherto been left in the dark about many of the motives of mind which are made clear in this book. For instance, we have been told by psychologists that the patient wants to be ill, and if we ask why, we have been led into a dim wood of sexual symbolism and there abandoned. Dr. Howe makes the matter plain by saying that the patient does not want his illness as such, he wants it as means to an end. He wants Love, Protection, and Power, and that we can understand. We are helped also in the chapter on sexual contrasts, when we are shown something of the minds of the man who is not altogether masculine and the woman who is not altogether feminine, and although we may feel that Dr. Howe has limited himself in making his description of "emotional development" almost entirely a description of the development of sexual emotion, his tracing of different stages is valuable and clarifying. He gives us something to get hold of too in his pages on dreams and on alcoholism. I will quote, if I may, one sentence which is illuminating on the motives which may lie behind some of those extraordinarily odd and unwise marriages which seem to produce almost all the difficulties of many of our patients. The words are (p. 160): "Difficulties in marriage are often due to the unerring choice of unconscious motives, neurosis seeking and finding complementary neurosis in a way that conscious reason may find to be intolerable" So, he says, the girl who has been repressed by a stern father may marry an invalid of whom she is not afraid, and the man with sexual repression may marry a blue-stocking.

I have given you evidence, I hope, that I find "Motives and Mechanisms of the Mind" worth reading, but I should like to add that it is not always easy reading. There are no references to literature in which more information might be found and hardly any explanation of the psycho-analytical processes by which, presumably, the author has arrived at this or that conclusion, so that many of the statements and opinions put forward seem dogmatic. It is a mere chance that I feel it safe to assume, for instance, that the interpretations of the four square gospel of obsession on page 30 were not far-fetched snap judgments but were the result of many hours of slow and laborious study of the patient. I make the assumption because I happen to know that that is the sort of way in which psychotherapists do work, but I think it would be a help to Dr. Howe's readers if something of the sort were explained to them. Moreover, I find him illogical sometimes, as when the only case quoted in a page or two on purposive illness is one of genuine optic neuritis (p. 25). It is obvious from the context that Dr. Howe is not Adlerian enough to ascribe a real optic neuritis to a wish to be blind; indeed, he says that the case shows the difficulties of diagnosis. But it is puzzling to find it where it is, just as it is puzzling to find as a case in which the cause of the symptoms is "primarily organic" the story of a man who suffered no physical injury from a minor accident which initiated his illness (p. 15).

It is not without a purpose that I write of these difficulties, for I want to suggest a way of using the book which will prevent the inquiring reader from being deterred by the superficial obstructions. He should, I think, take it as a text-book, and read a chapter at a time, without seeking to find in the book itself the justification for what he reads. If the physician will then set himself to watch and listen without interference or comment to such deeds and words of his friends and patients as have a bearing upon the subject matter of the chapter he has just read, I believe he will very greatly enrich his power of understanding and helping his patients. In other words, if he will take "Motives and Mechanisms of the Mind" as it stands and forthwith *use* it in his work, I feel sure that the practitioner will be greatly helped by it, and in the process I think he will come to see the meaning of what he has read in so far as that stands in need of amplification. If after that he wants to criticise or contradict, he will at least have clinical ground upon which to stand.

I am, Sir, yours faithfully,

Oct. 19th, 1931. PSYCHOLOGIST.

MEDICAL GRADUATES FOR PARLIAMENT.

SEVENTEEN members of the late House of Commons held a medical qualification. Two have been re-elected without opposition.

Name.	Constituency.	Party.
Prof. T. Sinclair ..	Queen's University, Belfast ..	C.
Dr. J. H. Morris-Jones ..	Denbigh (Denbigh) ..	Nat. L.

Twelve others are standing for re-election along with 11 new candidates most of whom have contested Parliamentary seats before. In the following list those who sat in the last Parliament are indicated by a dagger sign, those who have sat in any previous Parliament by a double dagger, and those who have stood before without success by an asterisk.

LONDON BOROUGHS.

Candidate.	Constituency.	Party.
†Dr. Alfred Salter ..	Bermondsey (West) ..	Lab.
†Dr. C. R. Cooke-Taylor ..	Camberwell (Dulwich) ..	L.
*Dr. J. Douglas Cooke ..	Hammersmith (South) ..	C.
Miss Esther Rickards ..	Paddington (North) ..	Lab.
Dr. W. J. O'Donovan ..	Stepney (Mile End) ..	C.
‡Sir Henry Jackson ..	Wandsworth (Central) ..	C.

ENGLISH BOROUGHS.

Candidate.	Constituency.	Party.
*Dr. J. W. Leech ..	Newcastle-on-Tyne (W.)	C.
Dr. Russell Thomas ..	Ilford	L.
†Mr. Somerville Hastings	Reading	Lab.
*Dr. A. B. Howitt ..	Reading	C.
*Dr. G. B. Hillman ..	Wakefield	C.

ENGLISH COUNTIES.

Candidate.	Constituency.	Party.
‡Dr. L. Haden Guest ..	Bucks (Wycombe) ..	Lab.
*Dr. R. A. Lyster ..	Hants (Winchester) ..	Lab.
†Dr. F. E. Fremantle ..	Herts (St. Albans) ..	C.
†Mr. H. C. Haslam ..	Lincolnshire (Horncastle)	C.
*Dr. F. G. Bushnell ..	Somerset (Taunton) ..	Lab.
†Rt. Hon. C. Addison ..	Wilts (Swindon) ..	Lab.

WELSH COUNTIES.

Candidate.	Constituency.	Party.
†Dr. J. H. Williams ..	Carmarthen (Llanelly)	Lab.

SCOTTISH BURGHS.

Candidate.	Constituency.	Party.
†Dr. Drummond Shiels ..	Edinburgh (East) ..	Lab.
†Dr. Walter E. Elliot ..	Glasgow (Kelvingrove)	C.

SCOTTISH COUNTIES.

Candidate.	Constituency.	Party.
†Dr. J. Hunter	Dumfriesshire	L.
†Dr. R. Forgan	Renfrew (West) ..	N.P.

UNIVERSITIES.

Candidate.	Constituency.	Party.
†Sir Ernest Graham-Little	London University ..	Ind.

C. = Conservative. L. = Liberal. Nat. L. = National Liberal. Lab. = Labour. Ind. = Independent. N.P. = New Party.

Brief Personal Notes.

Rt. Hon. Christopher Addison, M.D. Lond., F.R.C.S. Eng., Minister of Agriculture in the late Government, was at one time professor of anatomy at University College, Sheffield, and Hunterian fessor at the Royal College of Surgeons.

F. G. Bushnell, M.D. Lond., D.P.H., who has previously contested London University and the Moseley division of Birmingham, qualified in 1896, and has held public health appointments in Essex and Plymouth.

J. Douglas Cooke, M.B. Melb., F.R.C.S. Eng., qualified in Australia and was resident at the London Hospital. He practised for 20 years at Stanmore and contested Peckham at the last election.

C. R. Cooke-Taylor, M.R.C.S., D.P.M., is a barrister-at-law who took his medical diploma in 1927. He is visiting physician to the British Hospital for Nervous and Mental Disorders, and psychologist to the Ex-Service Welfare Society. This is the fifth time he has contested the seat, and the seventh time he has stood for Parliament.

Walter E. Elliot, *M.C.*, M.B. Glasg., was Parliamentary Under-Secretary of State for Scotland in the previous administration, and until he held office acted as honorary secretary to the Parliamentary medical committee.

F. E. Fremantle, O.B.E., M.D. Oxf., F.R.C.S. Eng., F.R.C.P. Lond., has sat in five Parliaments as Member for the St. Alban's division, and has been chairman of the Parliamentary medical committee. He was for 15 years county medical officer of health for Herts, and is a justice of the peace.

Robert Forgan, *M.C.*, M.D. Aberd., D.P.H., who qualified in 1915, is executive venereal disease officer of the Lanarkshire Joint Committee.

Sir Ernest Graham-Little, B.A., Univ. Cape of Good Hope, M.D., F.R.C.P. Lond., is in charge of the skin department at St. Mary's Hospital, London. He has been a member of the University Senate since 1905, and is now chairman of the External Council, as well as a member of the Academic Council and of the Finance Committee of the University.

L. Haden Guest, *M.C.*, M.R.C.S., has sat in Parliament as Member for Southwark (North). He has been school medical officer, consulting physician to St. George's school clinic, Blackfriars, and a member of the London County Council.

Henry C. Haslam, M.A., M.B., D.Sc. Camb., qualified in 1897, and is a biochemist attached to the Cambridge Pathological Laboratory.

Somerville Hastings, M.S. Lond., F.R.C.S. Eng., who has sat for Reading in two previous sessions, is surgeon in charge of the ear and throat department of the Middlesex Hospital.

G. B. Hillman, M.B.E., L.M.S.S.A., who is chairman of the West Riding local medical and panel committee, stood without success for the Normanton division in 1923. He is a justice of the peace, has been Mayor of Wakefield, and is now chairman of the general purposes committee.

A. B. Howitt, C.V.O., M.B. Camb., was Epsom scholar at St. Thomas's Hospital, qualifying in 1906, and holding a number of hospital appointments, including that of resident medical officer at St. Thomas's Home. He is son-in-law to Lord Marchamley, and stood previously for Preston.

W. S. Russell Thomas, M.B. Camb., is in practice at Warlingham, Surrey, and a member of the district council. He was called to the Bar last year.

A. Joseph G. Hunter, *M.C.*, M.D., F.R.C.S. Edin., is assistant surgeon to the Dumfries and Galloway

Royal Infirmary, and medical officer to the Dumfries prison.

Henry Jackson, M.A. Camb., B.Sc. Lond., M.B. Edin., who is in general practice on Putney Hill, was Mayor of Wandsworth from 1921–24. He is treasurer of the Bolingbroke Hospital, and six months ago became vice-chairman of the London voluntary hospitals central committee.

W. Leech, M.S. Durh., F.R.C.S. Edin., is surgeon to the Royal Victoria Infirmary at Newcastle-on-Tyne, lecturer in clinical surgery and examiner in the University of Durham. He is president of the University Medical Graduates Association, and has written on medical ethics.

A. Lyster, M.D., B.Sc. Birm., who has contested the same division before, was county medical officer for Hampshire, and is now lecturer on public health and medical jurisprudence at St. Bartholomew's Hospital. He has been president of the Society of Medical Officers of Health.

J. O'Donovan, O.B.E., M.D. Lond., is physician to the dermatological department and lecturer on dermatology at the London Hospital, which is in the centre of his constituency. He was, he says, compelled to step into the local political arena when the electric light was turned off at the hospital during a strike.

ther Rickards, M.S. Lond., F.R.C.S. Eng., qualified rom St. Mary's Hospital in 1920, and is maternal clinician to Tottenham Urban District and assistant medical officer to Finsbury Borough Council. She s an alderman of the London County Council, and a member of its public health and housing committees.

fred Salter, M.D. Lond., D.P.H., was elected to he House of Commons for the same constituency n 1923, and again in 1925 and 1929. He was chairman of the medical committee during the last Parliament. He is a J.P. for the County of London, and alderman of the Bermondsey Borough Council. He retired from general practice in Bermondsey two years ago.

Drummond Shiels, *M.C.*, M.B. Edin., has represented Edinburgh (East) since 1924, the year in which he qualified. He has been hon. secretary of the Parliamentary medical committee.

H. Williams, L.S.A., is a member of the Middle Temple, a justice of the peace, and chairman of the public health committee for the county of Carmarthen.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are notified: Surg. Lt.-Cdr. J. A. Cusack to *Shoreham*. Surg. Lts. T. L. J. Barry St. *Vincent*; J. G. Paley to *Dorsetshire*; and F. Dolan to od.

ROYAL ARMY MEDICAL CORPS.

Maj. E. C. Lambkin retires on retd. pay and is granted rank of Lt.-Col.

Lt. (on prob.) I. H. C. Morton, from the secd. list is restd. the estabt.

A. P. Trimble to be Lt. (on prob.) and is secd. for Pay and omotion.

ARMY RESERVE OF OFFICERS.

Lt.-Col. E. C. Lambkin (Maj., retd. pay) to be Lt.-Col.

Lt.-Col. W. L. Baker, having attained the age limit of bility to recall, ceases to belong to the Res. of Off.

Capt. R. J. S. McDowall, from Supp. Res. of Off., to be pt.

Capt. J. B. Cargin, late Capt., R.A.M.C. (temp. commn.), be Capt.

COLONIAL SERVICE.

The following Medical Officers have been appointed: *Dr. C. E. Riddell, Jamaica*; Dr. J. M. Shapiro, Palestine; and Dr. J. M. Stockhausen, Dr. T. Wilson, *and Dr. F. C.* Wright, Jamaica. The following promotions and transfers are also announced: Dr. G. L. Alexander, Medical Officer Sierra Leone, to be M.O., Gold Coast; Dr. J. M. Coutts, Dental Surgeon, Falkland Islands, to be Dental Officer, Straits Settlements; and Dr. W. *Wijegoonewardene*, Medical Officer, Grade I., to be Medical Superintendent, Kandy Hospital. Ceylon.

LONDON MEDICAL SOCIETIES.

SESSION 1931–32.

AT the opening of a new session we are again giving for the convenience of our readers the names of President and hon. secretaries, with the address at which they can be approached.

Royal Society of Medicine:—President: Dr. T. Watts Eden; Hon. Secretaries: Dr. George Riddoch and Mr. C. W. G. Bryan, F.R.C.S. Address: 1, Wimpole-street. W. 1.

Royal Society of Tropical Medicine and Hygiene:—President: Dr. G. Carmichael Low; Hon. Secretaries: Dr. C. M. Wenyon and Dr. N. Hamilton Fairley. Address: Manson House, 26, Portland-place, W. 1.

Medical Society of London:—President: Mr. Herbert Tilley, F.R.C.S.; Hon. Secretaries: Mr. W. E. Tanner, M.S., and Dr. T. Jenner Hoskin. Address: 11, Chandos-street, W. 1.

Hunterian Society:—President, Dr. David Ross; Hon. Secretaries: Dr. D. C. Norris, Mr. Andrew McAllister, F.R.C.S. Address: 14, City-road, E.C. 1.

Harveian Society:—President: Sir Thomas Horder; Hon. Secretaries: Mr. C. P. G. Wakeley, F.R.C.S., and Dr. R. Cove-Smith. Address: 24, Queen Anne-street, W. 1.

Medico-Legal Society:—President: Lord Riddell; Hon. Secretaries: Mr. Ernest Goddard, Sir Bernard Spilsbury. Address: 3, South-square, Gray's Inn, W.C. 1.

London Association of the Medical Women's Federation:—President: Dr. Letitia Fairfield; Hon. Secretary: Dr. Annis C. Gillie. Address: 86, Porchester-terrace, W. 2.

West London Medico-Chirurgical Society:—President: Dr. H. H. Mills; Hon. Secretaries: Mr. C. Hamblen Thomas, F.R.C.S., and Dr. W. S. C. Copeman. Address: 15, Harley-street, W. 1.

Chelsea Clinical Society:—President: Dr. H. Rivers Pollock; Hon. Secretaries: Mr. A. Rugg-Gunn, F.R.C.S., Mr. H. P. Baylis, L.D.S. Address: 49, Harley-street, W. 1.

London Clinical Society:—President: Dr. Edward A. Gregg; Hon. Secretary: Dr. Philip Figdor. Address: 23, Harley-street, W. 1.

West Kent Medico-Chirurgical Society:—President: Dr. Beatrice F. Lovibond; Hon. Secretary: Dr. C. J. B. Buchan. Address: 267, Baring-road, S.E. 12.

Royal Medico-Psychological Association:—President Dr. R. R. Seeper; Hon. Secretary: Dr. R. Worth. Address: Springfield Mental Hospital, S.W. 17.

Society of Medical Officers of Health:—President: Dr. C. Killick Millard; Exec. Secretary: Mr. G. L. C. Elliston. Address: 1, Upper Montague-street, W.C. 1.

Tuberculosis Association:—President: Prof. S. Lyle Cummins; Hon. Secretary: Dr. G. T. Hebert. Address: St. Thomas's Hospital, S.E. 1.

PRINCE ALFRED HOSPITAL, SYDNEY.—The board of directors, finding it impossible to meet expenditure, have closed 200 beds, which leaves 330 in occupation. It is estimated that the expenditure will thus be brought to between £800 and £1000 per month below income. By the sale of securities indebtedness has been reduced by £4000.

MEDICAL NEWS

Royal College of Surgeons of England.

A quarterly meeting of the Council was held on Oct. 15th, with Lord Moynihan, the president, in the chair. Sir Percy Sargent and Mr. Wilfred Trotter, F.R.S., were re-elected members of the executive committee of the Imperial Cancer Research Fund. Mr. R. Y. Stevenson, of the Herbert Strutt School, Belper, was admitted as the second Macloghlin scholar.

Diplomas of membership were granted to P. S. Bassalvi (Punjab and Middlesex), H. N. Gregg (Birmingham), G. S. Malik (University College Hospital), Sosa Matthew (Punjab and Royal Free), A. Shafi (Punjab and Charing Cross), and G. Steane (Birmingham).

It was reported that 10 out of 20 candidates had been successful at the *primary* examination for the Fellowship which was held at Melbourne, Australia, in August.

The annual meeting of Fellows and Members of the College will be held at 3 P.M. on Thursday, Nov. 19th.

University of London.

At recent examinations the following candidates were successful :—

D.P.H.

Katherine Barnett, R. E. Barrett, H. L. W. Beach, Sarah Boyle, Edgar Cochrane, May P. Cowell, H. A. Crouch, N. J. England, D. W. G. Faris, Marguerite M. Fenn, H. S. Gear, J. E. Howard, I. J. Jones, G. C. Kelly, T. C. Lonie, Hazel Machado, G. R. Marcano, Hilta I. C. Pfister, S. M. Rafi, Dorothy M. Rees, Florence M. Rhodes, J. H. N. Roe, A. P. Ross, B. M. Roy, C. R. Selous-Jones, S. P. Srivastava, A. T. Till, Sarah M. F. Walmsley, and W. J. Webster.

Scottish Conjoint Board.

As a result of recent examinations of the Conjoint Examining Board of the Royal Colleges of Physicians and Surgeons of Edinburgh and the Royal Faculty of Physicians and Surgeons of Glasgow, the following candidates have been granted the Diploma of L.R.C.P. and L.R.C.S. Edin., L.R.F.P. & S. Glasg. :—

Odette Rosset, J. A. Rosset, Cyril Hoole, O. E. R. Abhayaratne, W. E. MacDougall, J. I. Meikle, R. F. Hudecsek, W. B. Taylor, D. K. Cowan, J. G. Thomson, Frederick Ludorf, S. E. Paterson, A. V. Pieris, L. J. Scott, A. A. McNish, Jacob Janzen, N. R. Gupta, David Tolmie, David Houston, T. C. John, A. J. Ritchie, Robert Taylor, E. J. Ratnayake, A. I. Sayyid, Lambertus Lambinon, Thiruvilangam Kulanayagam, A. P. McDonald, D. D. W. Waldyasekera, and Elsie J. D. Scott.

D.P.H.

The following candidates have been admitted diplomates in Public Health :—

Hannah M. M. Elder, W. E. Orchard, E. J. G. Wallace, Dorothy M. Taylor, John Thomson, C. P. Hay, H. S. Chaturvedi, Jessie I. Rosie, Anna M. M. Kerr, Winnifred N. Henderson, Elizabeth H. Nimmo, Margaret B. McLaren, D. J. Campbell, Milan Sokolovitch, and J. A. Burgess.

Surgical Instrument Manufacturers' Association.

Mr. Patrick C. Maw presided at the annual dinner of the Association at the Holborn Restaurant on Oct. 9th. Mr. H. Guy Drew in proposing "The Association" recited the results of the splendid work achieved during the 14 years of its existence. Not only had the interests of members been watched but special service had been rendered to the Government Departments by supplying information that could only come of close contact with the trade as a whole. From its inception at the close of the war, the Association had dealt faithfully with the problems arising out of surplus war stocks, dumping, and trade-union restrictions. Mr. Maw, in reply, said that while the past year had been successful, he hoped for yet greater achievements. By collecting and giving information the Association was assisting the Board of Trade in bringing to book firms which were evading safeguarding legislation. They had taken part in 16 deputations to Government departments and assisted in projected legislation. Mr. A. N. Gardner extended a hearty welcome to "The Guests." In responding, Mr. T. P. Dunhill surveyed the relation between instrument maker and surgeon, from the time when the operator was able himself to make the simple tools he required for his work. Little by little the two crafts diverged, some becoming more interested in making instruments, others in using them. For himself, while he favoured simple instruments, [illegible] patient's life might depend on the availability of com-[illegible] apparatus. British workmanship was, he thought, [illegible] in the world and it was up to instrument makers [illegible] try to improve on anything made by its foreign [illegible] Mr. A. R. Melhuish, who also responded, [illegible] on the part played by drugs in surgery.

Rt. Hon.
Eng., Mn

London Hospital Dinner.

Dr. Cecil Wall, presiding at the old students' dinner at the Trocadero Restaurant on Oct. 15th, said that the late Lord Knutsford's motto during his 35 years' work for the London Hospital had always been "I dare"; and looking at the hospital to-day one might well say "Knutsford fecit." After welcoming the new chairman, Sir William Goschen, he went on to speak of many honours which had fallen to London men, including Lord Dawson's election to the presidency of the Royal College of Physicians. In the hospital itself there was steady development; but one thing was still required by the students it was the opportunity of leading a collegiate life. At least £6000 had been raised for the proposed new hostel, but a great deal more was wanted before building could start. In the larger sphere a subject which was beginning to engage attention was the overloaded state of the medical curriculum. This should be so arranged that it could be got through in the reasonable time allotted by law, and still be complete and thorough. Some neutral body should appoint a commission which could thresh out the real requirements. Secondly, something must be done to meet the intense desire of practitioners to keep up with modern developments. The State was trying to do this in one sense at the new post-graduate medical school in Hammersmith, and though its grant had been reduced from £250,000 to £100,000, building was to begin almost at once. He hoped that the school would also develop its external activities, keep in touch with medical societies, link up all existing organisations for post-graduates, and even encourage gatherings of local practitioners—say on Sunday mornings. Dr. Wall concluded by referring to the Society of Apothecaries' attempt to raise the status of those branches of practice which are ancillary to medicine. Dr. Russell Andrews, proposing the chairman's health, said that Dr. Wall had always taken the greatest interest in everything connected with the London and Londoners, and without him the Medical Club would have died of senility. He had done a lot of work and had had no thanks whatever. In seconding the toast Sir William Goschen said that as Lord Knutsford's successor he could not pretend to be a successful beggar, but he would look on the hospital as a great national department. Dr. Robert Hutchison remarked that after 31 years on the staff he was now getting men whose fathers had also been his students—a very interesting study in heredity. They made just the same mistakes and would be just as much a credit to the hospital. After Dr. Hutchison had mentioned, inter alia, that the proper treatment for a breech presentation is to apply a poultice until it comes to a head, the evening became a competition between raconteurs. Dr. Russell Andrews again observed Prof. A. J. Hall "neutralised the effect of his School lecture" (delivered during the afternoon) with three good stories from Yorkshire: Sir William Goschen countered from Sussex. And in due course the residents were [illegible] away to bed.

Chelsea Clinical Society.

Sir Thomas Horder, proposing the health of the Chelsea Clinical Society at its annual dinner at the Rembrandt Hotel on Oct. 20th, said that the society was founded in 1897 by 34 practitioners in the Chelsea district, two of whom still attended—Dr. E. A. Roberts and Dr. Dean Vinrace. At first it met at Chelsea Dispensary; then shortly before the war, it met at St. George's Hospital, where once a year it still held a clinical meeting; and now by way of the Florence Restaurant, it had reached the Rembrandt Hotel, where dinner meetings were regularly held. The present membership was 150, about equally divided between practitioners and "people who engage in consultant work or attempt surgical operations." He was told that the Chelsea Clinical Society supplied practically all the presidents of the other independent societies except himself, who now represented the Harveian. It was clearly the most select of all medical societies, and he hoped to be allowed to join it. Dr. H. Rivers Pollock, the president, in reply, spoke cheerfully of the society's bank balance, but said he did not want the meetings crowded with absentee members. As an experiment they were to be made a shade less educational, and in the present session nearly all the discussions were to be opened by laymen. The subjects included the medicinal value of wines, medicine and the press, medical evidence in criminal cases, medicine and the stage, and recent developments in domestic architecture. What with wine, crime, pictures, acting, and architecture, the programme was in fact "a little more Chelsea and a little less clinical." Mr. Ivor Back, proposing The Guests, said that Lord Hanworth, like the president, was a member of the famous Pollock family, whose distinction in four generations was the outstanding proof that heredity was more important than environment. Sir John Reith, as director-general of the British Broadcasting Corporation, was the only living autocrat besides Mussolini. (The famous wireless pirate detection van, in Mr. Back's opinion, was electrically inert, though morally persuasive.) Lastly, Mr. Herbert Tilley, president of the Medical Society of London, he described as the best loved rhinological surgeon. In reply, Lord Hanworth explained the nature of his office as Master of the Rolls, complained of the elaborate arrangements for illness nowadays made in boys' schools, and quoted Thackeray to the effect that it is not for the sick man but for the sick man's friends the doctor comes. Sir John Reith expressed the feelings of an autocrat outside his autocracy, and Mr. Tilley voiced the thanks of the other representatives of medical societies. Harvey's injunction to cultivate the spirit of fellowship was, he said, well observed in such an atmosphere, and the medical societies were fulfilling their function of the decentralisation and diffusion of knowledge.

Manchester Hospital for Consumption.

Post-graduate demonstrations on diseases of the chest, ear, nose, and throat, will be given at this hospital on Wednesdays at 4.30 P.M. from Nov. 4th to Dec. 2nd. The first will be by Dr. H. R. Clarke on the Diagnosis and Treatment of Early Pulmonary Tuberculosis, and the second by Dr. Vernon Smith on Hypertrophic and Atrophic Rhinitis.

London Jewish Hospital.

A bed in the London Jewish Hospital, Stepney-green, has been endowed by the Federation of Synagogues. It has been named the "Morris Harold Davis Bed" in memory of Mr. Davis's mayoralty of Stepney for the year 1930–31.

Norwich Mental Hospital Extensions.

Last week Miss Mabel Clarkson, Lord Mayor of Norwich, opened two new blocks which have been added to Norwich Mental Hospital at Hellesdon. They form part of a comprehensive scheme necessitated by increasing demands upon accommodation. The new buildings, which have cost only £212 per bed, will accommodate 100 parole patients.

West Bromwich Hospital.

In the year ending June 30th last, West Bromwich and District General Hospital received 1111 new in-patients who stayed an average of 33·48 days and cost £10 3*s*. 9*d*. each as against £9 7*s* 1*d*. in the preceding year. There were slightly over 15,000 out-patients. During the year about £9000 was raised by a bazaar and over £7000 by a carnival.

Ophthalmic Clinics.

St. Mary's Hospital, Paddington, has now been added to the London hospitals which have clinics at which an ophthalmic surgeon may be consulted for a fee of 10*s*. 6*d*. Persons eligible for attention are members of approved societies, contributors to the Hospital Saving Association, and those whose incomes do not exceed £6 a week and are willing to sign a declaration to that effect.

Motor Accidents in Yorkshire.

The annual report of the Yorkshire voluntary hospitals committee states that during the first six months' operation of the Road Traffic Act the amount received from patients injured in road accidents was £123, whereas the cost of treatment to the hospitals concerned was £4500. Of the 619 persons injured third-party payments were received in respect of only 32, and in other cases the insurance companies denied liability.

Society for Relief of Widows and Orphans of Medical Men.

At a quarterly court of this society, held on Oct. 14th, the President, Mr. V. Warren Low, being in the chair, the deaths of two widows were reported. One had, since 1926, received grants to the value of £450; her late husband had been a member for four years and paid £8 8*s*. in subscriptions. The other had, since 1922, received £750 in grants; her late husband was a member for 20 years and paid in subscriptions £12. Special grants amounting to £107 10*s*. were voted for the assistance of orphans with their education. A sum of £610 was also voted as a Christmas present, each widow over 75 years of age to receive £15, under 75 years £10, and each orphan £10. The new legacy book, illuminated and engrossed by Sir Frederick Hallett, was on view. Membership in the society is open to any medical man who at the time of his election is resident within a 20-mile radius of Charing Cross. Full particulars on application to the secretary at the offices of the society, 11, Chandos-street, London, W.1.

Chairmanship of the London Hospital.

Sir William Goschen, a member of the house committee, has been appointed chairman of the committee of the London Hospital in succession to the late Lord Knutsford.

Enlargement of Nuneaton Hospital.

A new kitchen wing has been added at a cost of £3500. It was formally opened by Miss Behar whose father recently recovered in the hospital from a serious motor accident.

Newcastle-on-Tyne Dental School.

The new dental hospital at Newcastle-on-Tyne is now in working order. It occupies the buildings of the former Orthopædic Hospital adjoining the Royal Victoria Infirmary and is governed by a new body on which representatives of the College of Medicine and the Infirmary have seats. The dental school is also well advanced.

New Freemasons' Hospital.

The contract for the erection of the new hospital and nursing home at Ravenscourt Park, Hammersmith, was signed last week, and the foundation-stone is to be laid in May next by the Duke of Connaught, Grand Master of English Freemasons. The building will contain 180 beds and will cost £260,000; it will be soundproof with a system of signalling which will avoid bell-ringing.

A Hospitals Welfare Society.

Lady Mayo recently distributed to the five local hospitals allocations of money which bring up to £50,000 the sum collected in 11 years by the hospitals welfare society which serves the districts of Lewisham, Deptford, and Greenwich. A band of 2500 voluntary collectors call weekly, fortnightly, or monthly at 100,000 houses; some 12 million pennies have thus been collected. The money is allocated, in proportion to need, among the Miller General, St. John's, Blackheath and Charlton, Seamen's, and South-Eastern Hospital for Children.

Manfield Orthopædic Hospital.

The report of the board of management of this Northampton hospital states that 214 patients suffered from tuberculosis of bones and joints, and 232 from infantile paralysis or resultant deformities. Another 20 per cent. suffered from congenital deformities, and 15 per cent. with rickety deformities. The 128 beds are never empty and the average stay is 266 days. The hospital has 1400 patients under its care, mostly children.

Donations and Bequests.

Subject to the life interest of her husband Mrs. Jeannie Thompson Long, of Keverstone, Bath, left some £15,000. One-half to St. Thomas's Hospital, London, to endow beds to be exclusively reserved for the free and separate treatment of aged and necessitous gentlefolk; and the other half to the Great Ormond-street Hospital, London, to endow beds to be exclusively reserved for the free and separate treatment of the children of necessitous gentlefolk.—Mr. William Francis Marshall, of North Lynn, Norfolk, left £1000 to the West Norfolk and King's Lynn Hospital.

Federation of the Health Resorts of France.

The eighth Voyage Médical International on the Riviera, organised by the Société Médicale du Littoral Méditerranéen, will take place from Dec. 26th to Jan. 9th, under the presidency of Prof. V. Balthazard, doyen of the Faculty of Medicine of Paris, and under the leadership of Prof. Laignel-Lavastine and Prof. Emile Duhot. The principal places to be visited are Marseilles, Aix-en-Provence, Hyères, St. Raphael, Cannes, Juan-les-Pins, Nice, Menton, Monaco, Monte-Carlo, San Remo. Further information may be obtained from the Federation of the Health Resorts of France, Tavistock House (North), Tavistock-square, London, W.C. 1.

Sheffield Hospitals.

The report of the Sheffield joint hospitals council for 1930 shows a decrease in the amount raised by the penny-in-the-pound scheme, although, notwithstanding trade depression, a considerable number of firms have joined the scheme. The total received last year was £116,000. There is a deficit on the year's working in respect of the four voluntary hospitals of the city. Their total ordinary income was £131,584, and their expenditure £150,915. The Royal Infirmary has the largest deficit—£11,081. If, however, legacies and other extraordinary incomes are included the only hospital with a deficit is the Infirmary, with £1223. During the year the hospitals admitted 17,675 in-patients who cost £7 6*s*. 9*d*. each. In the last 10 years the hospital council has raised over a million of money. The total accumulated debt to the banks is £92,950. Casualties averaged 140 per day, and at the end of the year the waiting-lists contained a fraction under 3000 names.

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

Monday, Oct. 26th.—8 P.M., Odontology. Inaugural Address by the President, Mr. E. B. Dowsett, Casual Communications. Mr. J. G. Turner: 1. Backward Movement of Lower First Molars. 2. Difficulties of Extracting Retained and Unerupted Teeth. Paper: Mr. E. B. Dowsett: Operative Procedure for Cysts of the Jaws. A discussion will follow.

Tuesday.—5 P.M., Medicine. Discussion on Glandular Fever. Openers: Dr. H. Letheby Tidy, Dr. John Bland, Dr. Herbert J. Williams. Other speakers will take part.

Wednesday.—5 P.M., Comparative Medicine. Presidential Address: Dr. J. A. Arkwright: The Unity of Medicine. Discussion on Bone Surgery in Animals. Opener: Professor J. McCunn. Followed by: Prof. F. T. G. Hobday, Mr. C. H. Fagge, and others.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

Monday, Oct. 26th.—8.30 P.M., Discussion on Blood Transfusion, to be introduced by Prof. Alexander Fleming, Dr. H. L. Tidy, and Mr. Geoffrey Keynes.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

Monday, Oct. 26th.—5 P.M., Mr. C. P. G. Wakeley: Primary Bone Tumours.

Friday.—5 P.M., Sir Arthur Keith: Anatomy of the Pyloric Sphincter in Hypertrophic Enlargement.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

Monday, Oct. 26th to Saturday, Oct. 31st.—Hospital for Sick Children, Great Ormond-street, W.C. Post-graduate course in diseases of children. Every morning.—Central London Throat, Nose, and Ear Hospital, Gray's Inn-road, W.C. Post-graduate clinical course in Diseases of the Ear, Nose, and Throat. All day.—Medical Society of London, 11, Chandos-street, Cavendish-square, W. Free Lecture on Wednesday, Oct. 28th at 4 P.M. by Dr. R. O. Moon on Heart Diseases.—M.R.C.P. Evening lectures as follows: at 5 P.M., Mon., by Mr. C. L. Gimblett on Medical Ophthalmology, with special reference to Retrobulbar Neuritis, Infective Diseases of the Uveal Tract, and Intracranial Lesions. At 8.30 P.M., by Dr. J. W. McNee on Recent Work on Diseases of the Liver, and on Wed. at 8.30 P.M., by Dr. J. W. McNee on Recent Work on Diseases of the Spleen.—Golden-square Throat Hospital, Golden-square, W. Post-graduate demonstration in the Out-patient Department, by Mr. Gilbert Chubb on Tues. at 6.30 P.M. No fee.—East London Hospital for Children, Shadwell, E. Post-graduate demonstration by Dr. Leonard Findlay on Tues. at 3 P.M. No fee.—Further particulars from the Fellowship of Medicine.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

Monday, Oct. 26th.—10 A.M., Gynæcological Wards; Genito-urinary Operations; Skin Department. 11 A.M., Surgical Wards. 2 P.M., Surgical Wards; Medical, Surgical, Eye, and Gynæcological Out-patients.

Tuesday.—9.30 A.M., Operations. 10 A.M., Medical Ward Demonstration; Dental Department. 11 A.M., Throat Operations. 11.30 A.M., Surgical Demonstration. 2 P.M., Operations; Medical, Surgical, and Throat Out-patients.

Wednesday.—10 A.M., Medical Wards; Children's Medical Out-patients. 2 P.M., Medical, Surgical, and Eye Out-patients. 2.30 P.M., Gynæcological Operations. 4.45 P.M., Venereal Diseases Demonstration.

Thursday.—10 A.M., Neurological Department. 11.30 A.M., Fracture Demonstration. 2 P.M., Medical, Surgical, Eye, and Genito-urinary Out-patients. 2.30 P.M., Operations.

Friday.—10 A.M., Medical Wards, Skin Department, Dental Department. 2 P.M., Medical, Surgical, and Throat Out-patients. 2.30 P.M., Operations.

Saturday.—9 A.M., Throat Operations. 10 A.M., Medical Wards, Surgical Out-patients; Children's Medical Out-patients.

UNIVERSITY COLLEGE, Gower-street, W.C.

Monday, Oct. 26th.—5.30 P.M., Prof. G. M. Trevelyan: Call and Claims of Natural Beauty. (Rickman Godlee Lecture.)

Tuesday.—6.30 P.M., Mr. S. J. F. Philpott: Fluctuations in Human Output. (First of three lectures.)

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL, University-street, W.C.

Tuesday, Oct. 27th.—5.15 P.M., Prof. C. R. Harington: Chemistry and Functions of the Thyroid Gland.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL, Denmark Hill, S.E.

Thursday, Oct. 29th.—9 P.M., Dr. J. A. Drake: Clinical Signs of Syphilis.

LONDON SCHOOL OF ECONOMICS, Houghton-street, W.C.

Wednesday, Oct. 28th.—5 P.M., Prof. R. Stenhouse Williams: Production, Distribution, and Value of Milk. (Last lecture.)

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.

Wednesday, Oct. 28th.—4 P.M., Dr. F. J. Browne: Health of the Expectant Mother.

UNIVERSITY OF BRISTOL.

Tuesday, Oct. 27th.—5 P.M. (in the Physiological Theatre), Dr. A. L. Flemming: Partnership between Anæsthesia and Surgery. (Long Fox Memorial Lecture.)

ST. MARK'S HOSPITAL, City-road, E.C.

Thursday, Oct. 29th.—4.30 P.M., Mr. E. T. C. Milligan: Peri-ano-rectal Inflammation.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.

Wednesday, Oct. 28th.—4 P.M., Mr. A. Clifford Morson: Recent Research in the Causation of Urinary Lithiasis.

NATIONAL HOSPITAL, Queen-square, W.C.

Monday, Oct. 26th.—2 P.M., Dr. Riddoch: Out-patient Clinic. 3.30 P.M., Dr. Walshe: Muscular Atrophy.

Tuesday.—2 P.M., Dr. Walshe: Out-patient Clinic. 3.30 P.M., Dr. Symonds: Neurosyphilis (2).

Wednesday.—2 P.M., Dr. Martin: Out-patient Clinic.

Thursday.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Dr. Riddoch: Intracranial Complications of Sinus Infections (2).

Friday.—2 P.M., Dr. Adie: Out-patient Clinic. 3.30 P.M., Dr. Greenfield: The Hæmato-encephalic Barrier.

ST. PAUL'S HOSPITAL, Endell-street, W.C.

Wednesday, Oct. 28th.—4.30 P.M., Mr. Kenneth Walker: Prostatic Obstruction.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James' Hospital, Ousely-road, Balham, S.W.

Wednesday, Oct. 28th.—9 P.M., Dr. R. G. Canti: Tissue Growth. (Film demonstration.)

ST. JOHN'S HOSPITAL DERMATOLOGICAL SOCIETY.

Wednesday, Oct. 28th.—4.15 P.M. (at St. John's Hospital 49, Leicester-square). Clinical Cases.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

Tuesday, Oct. 27th.—5 P.M., Dr. J. E. M. Wigley: Erythema Multiforme.

Thursday.—5 P.M., Dr. Knowsley Sibley: Principles of Treatment. Local.

NATIONAL COUNCIL FOR MENTAL HYGIENE.

Thursday, Oct. 29th.—5.15 P.M. (at 11, Chandos-street, W.) Dr. Israel Feldman: Sex Education.

CHADWICK LECTURE.

Friday, Oct. 30th.—5.15 P.M. (in the Large Hall of the British Medical Association, Tavistock-square, W.C.) Dr. F. J. McCann: The Prevention of Cancer (illustrated with epidiascope).

MANCHESTER VICTORIA MEMORIAL JEWISH HOSPITAL, Elizabeth-street.

Wednesday, Oct. 28th.—4.30 P.M., Dr. William Brockbank: The Diagnosis of Lung Cancer (with demonstration).

ANCOATS HOSPITAL, Manchester.

Thursday, Oct. 29th.—11 A.M., Dr. Arnold Renshaw: Clinical Demonstration. 4.15 P.M., Mr. P. G. McEvedy: Recent Advances in Injection Treatment.

MANCHESTER ROYAL INFIRMARY.

Tuesday, Oct. 27th.—4.15 P.M., Dr. F. R. Ferguson: Nervous Complications of Specific Fevers.

Friday.—Dr. C. H. Melland: Demonstration of Medical Cases.

UNIVERSITY OF SHEFFIELD.

Friday, Oct. 30th.—(At the Royal Hospital.) Dr. P. J. Hay: Eye Manifestations in General Diseases.

Appointments

Broomhead, R., M.B., Ch.B. Leeds, F.R.C.S. Eng., has been appointed Hon. Assistant Orthopædic Surgeon to the General Infirmary, Leeds.

Capener, Norman, F.R.C.S. Eng., Orthopædic Surgeon to the Princess Elizabeth Orthopædic Hospital, Exeter.

Fleming, G. W. T. H., L.R.C.P. Lond., M.R.C.S., Medical Superintendent, Hereford County and City Mental Hospital.

Gregory, J. C., L.R.C.P. Lond., M.R.C.S., Resident Medical Officer, University College Hospital, London.

McLaggan, J. D., M.B. Aberd., F.R.C.S. Eng., Surgeon to Ear, Nose, and Throat Dept., Croydon General Hospital.

Certifying Surgeons under the Factory and Workshop Acts: Caldwell, J. R., M.B., Ch.B. St. And. (Milnthorpe, Westmorland); Dalgetty, W. S., M.B., Ch.B. Edin. (Alston, Cumberland).

NOTES, COMMENTS, AND ABSTRACTS

WHY? A PHARMACIST'S QUESTION.

A WELL-KNOWN pharmacist sends us the following letter. This is not a political paper, but it seems that the question could have been asked before the matter of tariffs became a political issue. It was, he writes, remarked upon in THE LANCET recently that the bulk of the supplies of crude drugs, from which the Galenical preparations consumed in this country are made, originate in foreign countries, and that as a consequence of the depreciation of sterling many remedial substances are dearer. We have to import these drugs for the plain reason that our soil and climate are not suitable for their cultivation on a profitable scale. On the other hand we import, mainly from the Continent, hundreds of tons of medicinal products, alkaloids, and other active principals, which can be, and are, produced by our own chemical manufacturers in an equally pure condition as the foreign materials, and at prices as low as those at which these products can be placed on this market by the foreign makers. In the one case, the reason why we buy the drugs is that we cannot grow them ourselves; in the other case we buy them from abroad, because . . . why? One is at a loss for an answer. There may be a good, sound, solid, and sufficient answer, but, if so, what is it?

Assuming that British-made alkaloids, answering the tests of the British Pharmacopœia, can be bought at the prices quoted for alkaloids made on the Continent, why do we import large quantities of alkaloids from Germany, France, and Switzerland? We are dealing solely with those products which are made here on an economic scale—that is to say, in sufficient quantities to supply the home demand, and at prices which compare favourably with the products of foreign drug and chemical factories. Among the drugs, alkaloidal and otherwise, which answer this description are such commonly prescribed substances as ergotin, eserine, aloin, strychnine, atropine, caffeine, chrysarobin, cantharidin, salicin, ephedrine, jalap resin, podophyllin resin, scammony resin hyoscyamine, capsicin, and many others. Yet all these drugs are imported into this country in substantial quantities.

Turning to the fine chemical and synthetic groups it is seen that great volumes of products falling into the one or the other categories are brought into this country each year, notwithstanding that they can be produced in British factories in unlimited quantities, and are offered for sale at competitive prices. It is known that there is a large number of fine chemicals which are not produced here, but we are dealing only with those which can be supplied by British manufacturers. Take as an example the several salts of bromine. The British Pharmacopœia lays down definite tests for these compounds, and the bromides manufactured in English factories respond to these tests. There is no mystery about it; there is nothing subtle about it; potassium bromide B.P. is potassium bromide B.P. whether made in Germany or England; there is the test for ammonium thiocyanate, the volumetric test, the lead limit, and the arsenicl imit. No British maker can put his potassium bromide on the market unless it can pass all these tests. Thus no prescriber and no dispenser need suspect the British product, nor can any buyer of potassium bromide prefer the imported article on the ground of economy, for the prices of both are the same. This being the case, can anyone answer this question: Why was it that 84 tons of bromides were imported into this country in the year 1930? What has been said about the purity of British bromide applies equally to any of the products we have already named and which we are about to name. There is no need to keep on turning over the leaves of the Pharmacopœia. What we have said about price comparisons also applies to all. Why then do we import 45 tons of aspirin in a single year—enough aspirin to provide three 5-gr. tablets for every member of the population of the United Kingdom, including new-born babes? There is no special virtue in foreign aspirin; our own drug manufacturers could, if called upon to do so, supply the aspirin needs of the whole world; yet why do we ask the Continent to send us 45 tons of it? The more one looks into this matter the more perplexed one becomes. Why do we buy from abroad, each year, 150 tons of paraldehyde? It is made here, identical in quality and price, with the foreign drug. There is no need to swell the list of those things which we make here, yet buy from abroad. But why do we buy them from abroad? Sodium salicylate, phenolphthalein, lactic acid, calcium lactate, potassium iodide, thymol, and so on and so on—they are all made at home. Are we, in some matters, as thoughtless as a nation as we are as individuals? Will the crisis make us more thoughtful?

The nation, our correspondent concludes, is faced by the prospects of a large adverse trade balance, and every little helps: the widow's mite and the prescriber's prescription.

THE COMPLETE MILITARY SURGEON.

IN his presidential address to the United Services Section of the Royal Society of Medicine on Oct. 12th, Lieut.-Colonel E. M. Cowell briefly surveyed the glorious history of military surgery throughout the ages, a tradition which the young officer would do well to examine. To be complete, the military surgeon besides possessing high professional knowledge must understand the military art. He must study organisation and administration until he reached the standard of the staff colleges, he must be ready for improved methods of transport, perhaps vital at a pinch. He must be capable of instant decision, with sound judgment, tact, diplomacy, and tireless enthusiasm (almost a superman, Dr. Cowell said). War had always helped in developing medical and surgical knowledge.

In ancient Egypt, medicine had its origin from Sekhet, the goddess of war. Two sons of Æsculapius were in the Trojan War, one of whom had a light hand for extracting arrows and healing wounds, the other had precision of mind to understand what cannot be seen, and to heal seemingly incurable diseases. Machaon, a popular medical officer, always rode in the General's chariot, "for," it was said, "a doctor is worth many men." The Romans had doctors in their armies and fleets, and the army doctors in Trajan's time wore riding breeches as they do now, with a short sword and belt. The Roman military hospital was put in a quiet part of the camp to help recoveries. Surgeons of triremes drew double pay, as the Romans did not readily go to sea. Cæsar's chief of staff removed wounded in wagons. Galen wrote a treatise on malingering; self-inflicted wounds are mentioned in the fifth century, and about the same time removal of the wounded from an action to save demoralisation. Round about A.D. 800 the Eastern Emperor bade his Commander-in-Chief to "give all possible care to the wounded to save losing your men and destroying their spirit."

In feudal times, said Dr. Cowell, little was done for the soldier, but when Edward I. was wounded in Palestine, his wound was excised by an English surgeon, and Henry V. had a surgeon and a physician with him at Agincourt. With standing armies came increase in medical personnel. Isabella the Catholic had field hospitals with her in Andulasia in 1484, and was imitated by her grandson, Charles V., and a hospital ship accompanied the Spanish Armada. Richelieu founded the Maison des Invalides in 1633. Marlborough took great interest in the health of the men, introduced rhythmical marching, and so covered the 1170 miles in 81 days to Blenheim, where he himself organised the aid posts. Pringle (1740) made the first international convention about wounded, John Hunter was surgeon-general of the Army, but an indifferent administrator. Larrey and McGrigor were the great surgeons of the Napoleonic wars; another, Robert Jackson, wisely said, "handling a knife is the least part of a regimental surgeon's duty."

Hygeia, daughter of Æsculapius, was the first nurse. Women have always nursed wounded soldiers, the first organised order were the Béguines of Flanders in the twelfth century. In the Thirty Years' War St. Vincent de Paul inaugurated the Sisters of Charity, to whom he said, "men go to war to kill one another, you to repair its evils." Modern nursing began in Germany in 1836 with the Friends of the Poor, and it was Pastor Fliedner who inspired Florence Nightingale, according to Sir George Evatt, "the greatest sanitary reformer the world has ever seen."

Dr. Cowell concluded with a word on air transport. At a recent meeting the lack of air ambulances in this country had been deplored. The British Red Cross Society was, he said, now forming such a service. A Desoutter cabin monoplane had been presented to the Surrey branch of the Society; it was stationed at Croydon, where it was available for transporting civil cases any distance at any time. Requests should be sent to any air transport agencies, or to the Rollason Aviation Co., Croydon Air Port. The Mark I Machine can be loaded through the window, Mark II has a porthole cut in the fuselage for loading. They carry two patients lying or one with an attendant. The patient is in a Neil-Robertson stretcher, and loading takes 45 seconds. Dr. Cowell thinks this air-ambulance more convenient than those he saw recently in Paris. Films were shown of loading, the plane in flight, and landing, which aroused much interest.

HEPATEX P.A.F.

Messrs. Evans Sons Lescher and Webb, Ltd., remark that in an annotation on Substances Effective in Pernicious Anæmia (Oct. 10th, p. 807) we have referred to the extract used by Dr. J. F. Wilkinson as Hepatex. This is the well-known oral extract of liver which has been on the market for some time. The preparation employed by Dr. Wilkinson for parenteral administration is known as *Hepatex P.A.F.*

Vacancies

For further information refer to the Advertisement columns.

Aberdeen Royal Infirmary.—Asst. Gynæcologist.
Birmingham, Dudley-road Hospital.—Surgeon. £750.
Birmingham Mental Hospital.—Jun. Asst. M.O. £350.
Bradford Children's Hospital.—H.S. £120.
Bradford Royal Infirmary.—H.P. and two H.S.'s. Each £135.
Bristol Eye Hospital.—Res. H.S. £150.
Burton on Trent General Infirmary.—Jun. H.S. £150.
Central London Throat, Nose, and Ear Hospital, Gray's Inn-road, W.C.—Assts. for Out-patient Dept. Also Res. H.S. At rate of £75.
Charing Cross Hospital, W.C.—Asst. Surgeon and Asst. Phys.
Children's Hospital Hampstead, College Crescent, Swiss Cottage, N.W.—Res. M.O. At rate of £100.
Coventry City Municipal Hospital.—Asst. M.O. £250.
Dorchester, Dorset Mental Hospital.—Deputy Med. Supt. £575.
Edinburgh Royal Infirmary.—Clin. Asst. for Ophthalmology Dept. £200.
Glasgow Corporation, P.H. Dept.—Sen. Asst. for Bacteriological Laboratory. £700.
Great Yarmouth, General Hospital.—H.S. £140.
Halifax Corporation's Isolation Hospital.—Res. M.O. £350.
Halifax Royal Infirmary.—Third H.S. At rate of £150.
Hillingdon County Hospital.—Jun. Res. Asst. M.O. £250.
Hospital for Epilepsy and Paralysis, Maida-vale, W.—Res. M..O and H.P. At rate of £150 and £100 respectively.
Hospital of St. John and St. Elizabeth, 60, Grove End-road, N.W. Res. H.S. At rate of £75.
Lancaster Royal Infirmary.—Jun. H.S. £130.
Leeds, Tuberculosis Sanatorium, Killingbeck.—Asst. Res. M.O. £250.
Lincoln County Hospital.—Jun. H.S. At rate of £150.
London Female Lock Hospital, 283, Harrow-road, W.—H.S. At rate of £150.
Longton Hospital, Staffs.—H.S. £175.
Manchester, Royal Children's Hospital, Pendlebury.—Res. Surg.O. At rate of £125.
Manchester Royal Eye Hospital.—Jun. H.S. £120.
Middlesex Hospital and Medical School, W.—Surgical Registrarship. £300.
Miller General Hospital, Greenwich-road, S.E.—Hon. Phys. in charge of Psychological Dept.
Minehead and West Somerset Hospital.—Res. M.O. At rate of £150.
National Institute of Child Psychology, 19, Warwick-crescent, W.—Clinical Registrar. Also Clin. Assistants.
Newcastle General Hospital, Newcastle-upon-Tyne.—H.P. and H.S. Each at rate of £150.
Newcastle upon Tyne, Hospital for Sick Children.—Hon. Phys.
Newport, I. of W., County Mental Hospital.—Med. Supt. £600.
Preston and County of Lancaster Royal Infirmary.—H.P. At rate of £150.
Queen Charlotte's Maternity Hospital, New Isolation Hospital, Goldhawk-road, Hammersmith.—Res. M.O. £200.
Queen Mary's Hospital for the East End, E.—Hon. Physician to the Psychological Dept. Also Res. M.O. and Cas. O. £200 and £150 respectively. H.P.'s and H.S.'s. All £120 each.
Queen's Hospital for Children, Hackney-road, E.—Clin. Asst. in Orthopædic Department. Also Surgeon to Ear, Nose and Throat Dept.
Royal Free Hospital, &c., Gray's Inn-road, W.C.—Sen. Asst. At rate of £350. Also 3rd Asst. £270.
Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—Hon. Surg. Reg.
St. George-in-the-East Hospital, Raine-street, Wapping, E.—Asst. M.O. £350.
St. John's Hospital, St. John's Hill, S.W.—Asst. M.O. £350.
St. Mary Abbots Hospital, Marloes-road, Kensington, W.—Clin. Asst. £100.
St. Mary's Hospital, W.—Res. Anæsthetist. £150. Also Med. Registrar. £200.
St. Olave's Hospital, Lower-road, Rotherhithe, S.E.—Two H.P.'s. Each £80.
Saint Pancras Dispensary, 39, Oakley-square, W.C.—Res. M.O. £200.
Salvation Army, The Mothers' Hospital, Lower Clapton-road, E. Asst. Res. M.O. £80.
Samaritan Free Hospital, Marylebone-road, N.W.—H.S. At rate of £100.
Sheffield Royal Hospital.—Ophth. H.S. Also Anæsthetist. £120 and £80 respectively.
Stafford, Staffordshire General Infirmary.—H.P. At rate of £150.
Stamford, Rutland and General Infirmary.—H.S. At rate of £200.
Walsall, Manor Hospital.—Asst. M.O. £350.
Winchester, Royal Hampshire County Hospital.—H.P. and H.S. At rate of £150 and £100 respectively.
York County Hospital.—H.P., Res. Anæsthetist and Asst. H.S. Each £150.
York Dispensary.—Res. M.O. £175.

The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at Northwich (Cheshire) and at Heytesbury (Wilts.).

Births, Marriages, and Deaths

BIRTHS.

BOURNE.—On Oct. 15th, at Abbotsleigh, Rolle-road, Exmouth, Devon, the wife of William A. Bourne, M.B., of a son.

BRUSH.—On Oct. 18th, at Ashford, Kent, the wife of Dr. J. E. Brush, of Rolvenden, of a daughter.

HORE.—On Oct. 13th, the wife of W. G. R. Hore, D.L.O., R.C.P.S., of Charnwood-street, Derby, of a daughter.

MACKINTOSH.—On Oct. 13th, at Palmerston-place, Edinburgh, the wife of Alastair K. Mackintosh, M.B., Ch.B., of Bur House, Kinross, of a daughter.

REYNOLDS.—On Oct. 14th, the wife of Major W. L. E. Reynolds, M.C., R.A.M.C., of a son.

MARRIAGES.

HARTLEY—MARSHALL.—On Oct. 15th, at Holy Trinity Church, Bournemouth, John Alan Hartley, M.A., M.B., to Mary Howman, only daughter of Mr. and Mrs. A. W. Marshall, of Bournemouth.

MITCHELL—KERANS.—On Oct. 17th, at St. Peter's, Fordcombe, Thomas Walker Mitchell, M.D., of Hadlow, Kent, to Henrietta Violet Kerans, of Fordcombe, near Tunbridge Wells.

DEATHS.

BACK.—On Oct. 14th, at Church Farm, Great Hautbois, Norwich, Herbert Hatfeild Back, M.B., M.R.C.S.

BENSON.—On Oct. 9th, at Fitzwilliam-square, Dublin, St. J. Hawtrey Benson, M.D., aged 88.

COOKE.—On Saturday, Oct. 17th, Sir Edward Marriott Cooke, K.B.E., M.B., aged 79.

JONES.—On Sunday, Oct. 18th, at Oakley, Llandudno, Richard Jones, M.D., D.P.H., aged 73.

MCDONALD.—Very suddenly, at Walsall, on the 12th October, 1931, James McDonald, M.D., late of Bloxwich and Walsall.

MCKECHNIE.—On Oct. 14th, at Northwood, Middlesex, John Douglas McKechnie, L.D.S.

SMITH.—On Sunday, Oct. 18th, in London, after an operation, William Chearnley Smith, M.B., C.M., of The Oaks, Worcester Park, Surrey.

THOMPSON.—On Oct. 11th, at the Brompton Hospital, Dr. William Farrer Thompson, of The Chestnuts, Woburn, aged 44.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages and Deaths.

ADDRESSES AND ORIGINAL ARTICLES

THE SURGERY OF THE DIFFUSE SPLENOMEGALIES.*

A. JAMES WALTON, M.S. LOND., F.R.C.S. ENG.,
SURGEON TO THE LONDON HOSPITAL.

I.

THE diffuse splenomegalies constitute a subject only of considerable difficulty but one in which present our knowledge is very uncertain. Whereas pathology and treatment of the local enlargements the spleen are fairly well defined, there is much be learned, and therefore considerable disagree- nt, on these points in regard to the diffuse enlarge- nts. So little, indeed, is known of the function of s organ and of the actual influence, whether benign malignant, exerted by it in the various diseases which it is affected, that only in recent years can y definite knowledge be said to have been gained to the value of surgical interference. It is dually being appreciated that there are certain nptom-complexes which are often spoken of as eases, but curious combinations of the individual nptoms are occasionally seen which would make believe that what is often regarded as a specific nptom of a definite disease is in fact only an eration in splenic function which might possibly ur with several quite distinct changes. I have s found that in my own work, both pathological l clinical, the greatest help is to be obtained by sidering not primary pathological changes but erations in the functions of the spleen, and although reby one may possibly group together conditions ich later may be shown to be due to entirely erent pathological lesions, one obtains a greater ght into the difficult question of the value of gical treatment.

Lesions Due to the Spleen's Function as a Reservoir.

Of late years, owing to the work of Barcroft and et, attention has chiefly been directed to the pacity of the spleen for acting as a blood reservoir. contractile power enables it to store up large antities of blood which can be released in times of essity—e.g., after a severe hæmorrhage. This ction is not, however, entirely free from danger, corpuscles which have become infected may be red up in the spleen and so be removed from rative methods, whether natural or applied. This gan may thus act as a focus of infection over a ry prolonged period, as is chiefly seen in the pro- toal and tuberculous infections. Splenomegaly is mmon in all cases of malaria, kala-azar, and syphilis, d is then only part of a general infection. In rtain cases, however, the disease becomes chronic d fails to yield to ordinary forms of treatment. he spleen may then remain enlarged, and may ntain the parasites in relatively large numbers, that just as a typhoid infection may persist for ars owing to a localised focus within the gall-bladder, may the spleen act as a nidus for a recurring fection. In the same way, if the evidence be clear at this is the only or chief focus, a cure may be rought about by splenectomy. Sir Humphry olleston has shown that in congenital syphilis the spleen is nearly always enlarged if the child is born with evidence of syphilis, and that a splenomegaly in a child with anæmia should always suggest syphilis. In such cases the patient may not improve with the ordinary methods of treatment, but may be cured after splenectomy. Giffin [9] reports ten such cases with three deaths and seven recoveries, the latter being well after ten years. Gibson [7] states that in certain cases of malaria and kala-azar in which the symptoms are chiefly the presence of a splenomegaly, a splenectomy may be a very successful measure, but in the latter disease, although the Leishman-Donovan bodies are stored in the spleen in vast numbers, splenectomy would probably be a hazardous procedure. It is interesting to note that in all such cases, as in most splenomegalies, an anæmia of the secondary type may be the dominant symptom. That a protozoal infection may lie dormant for many years within an enlarged spleen, just as a typhoid infection remains dormant in the gall-bladder, is shown by one of my cases.

A doctor, aged 46, who had lived in Demarara until the age of 13, had at that time attacks of malaria, but the infection had apparently entirely died out and he had remained free ever since leaving that country. Nine years ago he had a suppurative thrombosis of the left median basilic vein, and four years ago had a bad septic finger, but he had otherwise remained well and lived an active, busy life. For a few months he had been getting easily tired, and one week before, while lying in bed, had felt his abdomen, as it appeared to be larger than normal, and found that his spleen was much enlarged. Blood examinations showed nothing beyond a secondary anæmia, and he was reported as a case of splenic anæmia. Owing to the fact that he had had malaria as a child, special search was made for the presence of malaria parasites, but none was found. The liver was slightly enlarged and the spleen markedly so, reaching below the umbilicus.

Splenectomy was performed and he made a good recovery. The spleen was very large, weighing 4½ lb., and showed one large infarct in the lower pole. The Malpighian bodies were distinct and very visible, and the pulp a little granular, but there was no distinct fibrosis. Fifteen days after operation several parasites of the benign tertian type were discovered in the blood, and on the twentieth and twenty-third days after operation he had two typical attacks of malaria. With N.A.B. injections and quinine the attacks ceased, and the parasites disappeared from the blood. There therefore appeared to be little doubt that in this patient the malarial parasites had remained localised in the spleen for 33 years, and that during the splenectomy some were liberated in the blood, giving a return of the malarial attacks. He is now well and back at work.

With tuberculosis the changes are much less localised in the spleen. There is always a primary infection in some other area of the body, and the foci in the spleen have developed as a part of the general dissemination. The lesions elsewhere may retrogress but rarely heal entirely, while those in the spleen may increase until they dominate the clinical picture. Thursfield [24] has shown that there is a curious age-distribution of such changes; for they are more common in children over four months and under six years. Even if the spleen be large and the chief cause of the symptoms, removal is not very satisfactory in that the lesions elsewhere in the body are likely to recur at a later period, as in the two cases reported by Rock Carling and Braxton Hicks.[19] In a case in the London Hospital of this type there was old caseous tuberculous salpingitis with large caseating masses in the spleen, evidently of long standing (see Figure). The patient had, however, only been ill for a few months, and at post-mortem miliary tubercles were found throughout the lungs and bronchial glands. In all these cases in which the infection has—as it were—become stored in the spleen reservoir, there and especially by Prof. Nantor, but which has not been confirmed by other workers in this country. The fact already mentioned, that so many cases of Banti's disease have been apparently cured for a long period by splenectomy performed in the early stages, would certainly support the view that the primary site of the change is situated in the spleen. The work of Foa [5] and Troell,[26] showing that ligation of the splenic vessels leads to atrophy and not to hypertrophy of the spleen, also does not support the view that the change is due to a primary thrombosis. My own experience in 13 cases which were clinical examples of Banti's disease failed to show any evidence of thrombosis of the splenic vessels in seven.

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* An address delivered before the Windsor Medical Society. art II. will appear next week.

Even in these more or less simple changes in the spleen, Rosenthal [21] and Howel Evans [11] have shown that the number of platelets in the blood may be altered. It is therefore possible that a diminution in their numbers may account for some of the hæmorrhages that are found in this disease: they were decreased to 45,000 in one of my cases. It is also certain that if the count be high the mortality is increased owing to post-operative thrombosis; a change which possibly in part accounts for the belief that the condition of the spleen is due to a primary thrombosis. The balance of evidence at present, therefore, seems to support the view that in these conditions the primary change is within the spleen.

Whether or not true Banti's disease does occur in this country, sufficient cases which conform to the clinical picture have now been subjected to operation for accurate estimates to be made of the value of this form of treatment. In my own series of 42 splenectomies there have been 17 which have been provisionally grouped in this series. Of these, four presented evidence of a primary liver change, leaving 13 which have been regarded as splenic anæmia. All investigators have been unanimous in finding that in this group the operative mortality is low, provided the operation is performed in the early stages, but if ascites is already present the risk becomes considerably greater. Sir Humphry Rolleston [20] found that in the 69 collected cases of Chaney the mortality was 13 per cent. when there was no hepatic cirrhosis, but it rose to 23·3 per cent. when this liver change was present. In Giffen's [9] series of 123 cases there were only 15 operative deaths, and in the 62 cases reported by Pemberton [17] only four deaths. The end-results of the cases operated upon in the early stages are also satisfactory. In Giffen's series 63 had been operated upon more than five years ago, and of these nine had lived longer than 11 years and one for 18 years. Of my own 13 cases grouped as splenic anæmia two who were gravely ill from severe hæmatemesis died as a result of the operation; two who had cirrhosis of the liver died within two years from further progress of the disease; one who had jaundice before operation occasionally shows the same symptoms. The others have remained alive and well, one for ten, one for eight, one for five, one for three years, and the remainder for shorter periods after operation. Of the four grouped as primary cirrhosis of the liver two died from operation and one a year later; one is alive and well less than a year after operation. Giffen and others have shown that, when cirrhosis of the liver is established, a considerable number die at a later stage from gastric hæmorrhage, probably from rupture of the varicose œsophageal veins. The recovery from weakness and anæmia is also much slower. On the other hand, if the cirrhosis of the liver be not too advanced, it may apparently improve. Parsons [16] has noted this fact, and Sweetser [23] has reported an in case in which not only was the patient alive and 15 months after the operation, but the liver had, as far as could be shown clinically, apparently enlarged to normal size. When it is remembered that with any form of medical treatment these cases all seem to progress to a fatal cirrhosis of the liver, there can be no doubt that splenectomy should always be advocated in the early stages, provided the platelet count is not high, and even when there is a definite cirrhosis this operation may hold a hope of improvement if not of a complete cure.

THE ALBUMINURIA OF PREGNANCY.

A MECHANICAL HYPOTHESIS.*

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It is well known that a proportion of apparently healthy men (and presumably women) pass albumin in their urine in clinical amounts, and that diet, cold baths, and exercise may provoke albuminuria, while severe exercise may be associated with the passage of blood, granular and hyaline casts.

Jehle,[1] in 1908, suggested that orthostatic albuminuria was caused by lordosis, and it soon became evident that albuminuria could be provoked in many children and some adults by keeping them, while sitting or standing, in the position of lordosis. Fischl,[2] repeating the experiments of Jehle and Nothmann, was able to cause albuminuria in rabbits and dogs by tying them in a position of lordosis. Nobody has, however, explained precisely how lordosis causes albuminuria or whether the albumin comes from one or both kidneys.

Vorpahl,[3] in 1910, found that a girl, aged 12, with a left convex lumbar scoliosis and a compensatory right convex dorsal scoliosis, passed albumin but not casts from her right kidney only. Mayer,[4] in 1909, reported a case of orthostatic albuminuria in which the albumin came only from the left kidney. In 1920, Sonne [5] affirmed that in orthostatic albuminuria the albumin came from the left kidney only. He catheterised the ureters of six patients and found the urine from the right kidney was normal in each case, whereas in four cases there was left-sided albuminuria and in the other two patients the urine from the left ureter was albuminous.

It was with the object of investigating this problem and attempting to determine whether the albuminuria of pregnancy could be explained on a mechanical basis, that the following experiments were performed.

Laboratory Experiments.

Seeing that my aim was to consider the subject from the clinical standpoint, I have only used two tests for the detection of albumin, the one being the boiling test performed after the addition of acetic acid, and the other the addition of trichloracetic acid (20 per cent. solution), the latter being used when the amount of urine was small. Albumin + corresponds roughly to between 0·05 per cent. and 1 per cent. of albumin, a "cloud" lies between albumin + and a "trace," which is readily seen, whereas a faint trace could only be detected against a dark background.

The first point I attempted to decide was whether

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* The expenses of this investigation were met out of a grant given by the Medical Research Council, to whom I express my thanks.

dogs when placed in the position of lordosis passed albumin only from the left or from both kidneys.

Dec. 17th, 1930.—A dog weighing 13 kg. was anæsthetised with a mixture of chloroform and ether. Chloralose 1·3 g. was then introduced into the right jugular vein. The ureters were found and divided close to the bladder, and glass cannulæ were inserted into the ends, which were brought out through the abdominal incision. The abdominal wound, except for the lower two inches, was then closed. An empty Winchester bottle, having a diameter of 12·5 c.cm., was placed under the lumbar spines, and the dog tied firmly to the table. The urine withdrawn from the bladder contained no albumin. The secretion of urine was very slow. At the end of one hour, the urine from the left ureter contained a trace of albumin, and half an hour later the urine from both ureters contained albumin, which increased in amount as the experiment continued, although the quantity of urine secreted was small. Glucose in saline (200 c.cm.) was injected intravenously two hours after the commencement of the experiment, and within five minutes a distinct diuresis occurred. The urine passed a quarter of an hour later contained sugar but no albumin. Twenty *minutes later the urine from* both ureters contained albumin+ but no sugar.

The abdomen was then widely opened, and the feature which attracted the attention was the enormous dilatation of the inferior vena cava. Closer inspection showed this dilatation to be due to the curvature of the spine, at the angle of which the anterior wall almost came into apposition with the posterior, so constricting the lumen of the vein. Both renal veins were markedly distended, and the kidneys, of a blue-black colour, with glistening capsules, were distended to double their normal size. The kidneys were removed, and returned to almost their normal size soon after the veins were cut. When divided, each kidney showed a normal and relatively pale cortex, a deep purple zone at the bases of the pyramids, and a faint purple medulla. The capsules stripped easily.

This experiment was repeated on five further dogs, and was in each case conducted in the same manner, except that a wooden box, 10 cm. high by 7 cm. in width, was substituted for the Winchester bottle, and the ureters were brought out through stab wounds in the flanks, so that the abdomen could be completely closed. In every case albumin appeared in the urine, usually within 40 minutes, sometimes coming first from the right and sometimes from the left kidney. The amount of urine secreted varied considerably, but a diuresis could not, as a rule, be caused by the introduction of glucose intravenously. After the box was removed the albumin decreased in amount, but in no case did it disappear before the end of the experiment. It was usually possible to express about 4 c.cm. of urine out of each kidney before it was separated, but this manœuvre was liable to cause hæmorrhages on the surface underneath the capsule. The macroscopic appearances of all the kidneys were very similar, except that in some minute hæmorrhages were evident on the surface of the organ which had not been caused by handling.

THE PRESSURE IN THE INFERIOR VENA CAVA.

I next attempted to measure the pressure in the inferior vena cava.

Dec. 30th, 1930.—A dog weighing 9 kg. was anæsthetised in the manner described. The inferior vena cava was found and separated, and the small veins running into it ligatured. At this point Heparin was injected intravenously to prevent the blood from clotting. The vein was then tied in two places, below the entry of the renal veins, and divided. A glass T-piece, coated on the inside with paraffin, was inserted into the two ends of the vein and tied in position. The ligatures having been removed, the other end of the T-piece was connected with a manometer *filled* with saline. The pressure recorded was 6 cm. of saline. After the guts were replaced and the abdomen partially closed the pressure rose to 10 cm. The rapid introduction of 200 c.cm. of saline into the jugular vein caused the pressure to rise to 18 c.cm. The dog was then placed in the position of lordosis and the pressure rose to 35 cm., to drop almost *immediately to 28 cm., at which level it remained constant.* It is necessary to add that the shock and hæmorrhage associated with the operation caused the arterial blood pressure to sink to 60 mm. Hg.

This experiment was performed on three dogs, and on every occasion the position of lordosis was associated with a pressure of 28 cm. It is of interest to note that the pressure rose to 26 cm. when a recently killed dog was placed in this position.

These readings, while consistent, were too high owing to the fact that the bore of the T-piece was too small. I therefore measured the pressure in the lower end of the inferior vena cava by inserting a cannula into the right external iliac vein after the manner described by Bayliss and Starling.

The cannula and the manometer were filled with a 5 per cent. solution of sodium citrate, which has a specific gravity of 1012 or, roughly, 1/13th that of mercury, and it will be understood that subsequent readings of the venous pressure will be expressed in mm. of this fluid. The first dog weighed 7 kg. The arterial pressure (measured in the left common carotid artery) was 144 mm. Hg, and the venous pressure 23 to 28 mm. The dog was then placed in the position of lordosis, when the venous pressure rose to 140 mm. This position was maintained for one and three-quarter hours, at the end of which time the pressure had dropped to 123 mm. The arterial pressure remained constant during this time, although the pulse pressure decreased. Two *other dogs, each* weighing over 13 kg., were used. It was found possible to obtain readings of 220 mm. when the box was placed under the spine, but in both cases the pressure dropped to between 150 and 160 mm. after the position had been maintained for some little time. Dog 3 was turned over on to its left side and the spine arched while being kept in the same plane. In this position a pressure of 270 mm. was recorded, so that it is evident that the height of the box placed under the back does not account for the increase of pressure in the inferior vena cava. It was found that the intraperitoneal pressure was increased by 60 mm. of saline *in the lordotic position, so that this* rise of pressure, although significant, could not account for the increase in the venous pressure.

When the pressure in the inferior vena cava of dog 2 had remained constant for some time at 60 mm., 750 c.cm. of warm water were introduced into the stomach, which caused the venous pressure to rise to 92 mm. The pressure fell again to 60 mm. so soon as the fluid was withdrawn. On another occasion the introduction of a litre of water into the stomach raised the pressure in the inferior vena cava from 55 to 145 mm. When attempting to repeat this procedure on dog 3, it was found *that the introduction of* the stomach-tube was followed by a slow respiration-rate of 4 to 5 a minute. Immediately after inspiration the venous pressure dropped to 50 mm. and then rose rapidly to 110 mm. From this level the pressure rose gradually to 165 mm. until inspiration occurred about 15 seconds later. The expiratory phase seemed to be continuous, and was prolonged until inspiration occurred. This cycle was observed for over half an hour, during which time the arterial pressure remained constant at 142 mm. Hg.

The abdomen of dog 3 was opened and a cannula was inserted into the distal end of the *left renal vein.* The pressure recorded was 74 mm. Hg, the arterial pressure measured in the left carotid artery being between 102 and 112 mm. Hg. It is thus evident that the pressure in the renal vein, if it be obstructed, may rise until it almost equals that in the renal artery.

A cannula was then introduced into the proximal end of the left renal vein, and the inferior vena cava was occluded immediately below the entry of the renal veins. The pressure in the proximal end of the right renal vein was thus obtained and found to be 92 mm., or about 7 mm. Hg. In another dog readings varying *between 4 and 8 mm. Hg* were obtained.

We thus see that the pressure in the distal end of the inferior vena cava normally lies between 25 and 60 mm. when the animal is tied on its back and is under an anæsthetic. This pressure is increased if a considerable quantity of fluid be introduced into the stomach, or if the expiratory phase of respiration be unduly prolonged. Arching of the spine, whether over a box or when the animal lies on its side, is always associated with a great increase in the venous pressure, on one occasion amounting to 220 mm., within 13 minutes of the back being arched. At the end of 36 minutes the urine from the left kidney contained albumin+, whereas that from the right contained albumin++.

CASE 4.—Patient, aged 27, the mother of three children, the youngest being 7 months old. Her urine was free from albumin before the experiment, but within 13 minutes of the commencement of the experiment she passed urine from both catheters which contained a trace of albumin. At the end of 37 minutes the urine from both catheters contained albumin+.

The urine passed by the last three patients at 8 P.M. the same night and first thing the next morning contained albumin, between a cloud and one+, and centrifuged deposits showed red blood corpuscles but no casts or epithelial cells. Subsequent specimens from all three women were free from albumin.

CHROMOCYSTOSCOPY.

On Feb. 19th (nine days after the experiment) 5 c.cm. of indigocarmine were injected intravenously into patients 3 and 4. In patient 3 the dye was seen to issue from both ureters in just under five minutes, and in patient 4 in just over five minutes.

On Feb. 21st both patients were again placed in the modified Walcher's position for 40 minutes, at the end of which time patient 3 still passed a urine completely free from albumin, while that passed by patient 4 contained a trace.

Patient 3 was taken to the theatre, and within half an hour of the conclusion of the experiment indigocarmine (5 c.cm.) was injected intravenously to appear from both ureters in just over six minutes. The urine passed the same night, eight hours after the conclusion of the experiment, contained a cloud of albumin, and that passed the next morning, 11 hours later, contained a trace, the specific gravity of both specimens being 1026. No casts or cells were seen in a drop of the centrifuged urine.

Patient 4 was given a similar injection of indigocarmine just over one hour after the conclusion of the experiment, but the dye failed to appear from either ureter by the end of 18 minutes when the cystoscope was removed, although the ureteric orifices were seen to contract at regular intervals. The urine passed the same night had a specific gravity of 1020 and contained albumin+, while that passed the next morning contained a cloud of albumin. A drop from the centrifuged deposit of the urine passed at night contained red blood corpuscles but no casts.

On March 13th, 18 days later, 3 c.cm. of indigocarmine were injected intravenously into patient 4, and the dye was seen to issue from both ureters in 3 minutes 55 seconds.

On April 1st, at 11.10 A.M., this patient again lay in Walcher's position for 40 minutes. At the end of the experiment the urine contained sugar but no albumin. She was given a glass of water, and at 12.20 P.M. indigocarmine (5 c.cm.) was injected intravenously to appear from both ureters in 3 minutes 55 seconds. On April 2nd, at 1.30 P.M., indigocarmine (5 c.cm.) was again injected intravenously. The bladder was partially emptied, and specimens were then withdrawn at intervals of one minute. It was not until after six minutes that the urine was seen to be faintly tinged with the dye.

EXAMINATION OF URINE.

It has been stated that the urine passed by patient 4 immediately after the experiment contained sugar but no albumin. Four further samples were obtained on April 1st. The first was passed immediately after the midday meal and contained a trace of albumin. The remaining three samples contained a cloud of albumin. Three of the specimens contained acetone and aceto-acetic acid, giving an extreme reaction with liquor ferri perchloridi, while two samples caused a slight reduction of Fehling's solution.

The urine passed first thing in the morning of April 2nd contained a cloud of albumin, while that passed after breakfast not only contained a cloud of albumin but also acetone. The urine withdrawn after the midday meal, before the dye was injected, contained neither albumin nor sugar nor acetone, and four further specimens passed the same day were absolutely free from any abnormal substance, as was the urine passed the next morning.

It is therefore evident that Walcher's position causes albumin to appear in the urine secreted by both kidneys. The ureters were catheterised about three hours after the midday meal, and on each occasion albumin appeared in the urine during the course of the experiment. When, however, the women were placed in this position after a breakfast of bread, margarine, and tea, the urine collected from patient 3 at the end of the experiment contained no albumin, while that obtained from patient 4 contained a trace on one occasion, and none on the other. Later specimens obtained after the midday meal, at which meat was eaten, did, however, contain albumin. These facts can only be explained by assuming that the congestion of the kidney causes a temporary alteration in the permeability of the glomerular tufts, and that the excretion of albumin *depends to no little degree on the food ingested.*

The fact, however, that Miss X failed to pass albumin in her urine at the end of the experiment, although she had taken meat for her lunch three hours previously, would suggest that the changes in the glomerular tufts, which permit the escape of albumin, may not reach their maximum until some hours after the congestion has operated.

I regret that I have not examined all the urines for the presence of sugar, but it has not been present in the great majority of samples which I have tested for its presence. I have, however, detected it in three urines passed immediately after the experiment, in two of which no albumin was found. I will not attempt to explain the presence of acetone. I only examined one set of urines for this substance, and it may have been present in some of the others.

I am disposed to believe that the congestion of the kidney, caused by Walcher's position, may lead to a delay in the excretion of indigocarmine, although the results of the experiments are admittedly inconclusive. In this connexion it is interesting to note that a delay in the excretion of indigocarmine may be the only abnormality to be discovered in the kidney functions of patients who have recovered from eclampsia.

ALBUMINURIA CAUSED BY SLOW, DEEP BREATHING.

Five men took as few breaths as possible while they stood for 30 minutes in a natural position. The maximum number of breaths taken was 105 and the minimum 53. Only one man failed to pass any albumin in his urine at the end of the experiment, but it was present in the specimen he passed two hours later. One youth had a trace of albumin in his urine before the experiment, after which albumin ++ was discovered, while the addition of acetic acid to the cold urine caused a heavy precipitate. Of the urines passed by the other men one contained a very faint trace and the others a trace. Albumin was still present in the urines passed by four of the men two hours after the experiment and in three cases in increased amounts. Nothing could demonstrate more forcibly the varying susceptibility of different kidneys to similar changes in the venous pressure, for the man who passed the most albumin took 105 breaths, while the man who passed none immediately after the experiment took 66.

EGG ALBUMIN.

The medical student whom I mentioned in a previous paper as having passed a large amount of albumin in his urine after remaining for *only* ten minutes in Walcher's position, took the whites of 12 eggs mixed with 25 c.cm. of absolute alcohol on an empty stomach at 1 P.M. on Jan. 6th, 1931. At the end of one and a half hours his urine contained a trace of albumin, which reached albumin + half an hour later. He still passed a trace of albumin at the end of three hours. I repeated the experiment on myself but passed no albumin.

A patient who had had a marked albuminuria associated with pregnancy took the whites of ten eggs in 25 c.cm. of alcohol at 5 A.M. 14 days after her confinement, and she was catheterised at 5, 6, 7, and 8 A.M. The specimen collected at 7 A.M. contained a definite trace of albumin, but the other samples contained none. The urine passed by this woman was albumin-free while she remained in bed, but contained a trace when she was up, which was considerably increased after 15 minutes in Walcher's position.

Finally, I may mention that I caused four women in the last month of pregnancy to stand for 17 minutes with their toes pointing outwards and their shoulders bent backwards. Of the four women, two passed urines containing the faintest trace of albumin, while that of the others was albumin-free. At the end of 17 minutes the urines of the first two women contained definitely more albumin, while that of the third and fourth contained a faint trace.

Summary of Results.

(1) The position of lordosis causes dogs to pass albumin in the urine secreted by both kidneys, and is associated with a pressure of about 10 to 12 mm. of Hg in the inferior vena cava.

(2) Owing to the peculiarities of the renal circulation, the kidney permits the escape of albumin if the pressure in the proximal end of the renal vein be raised by only 3 to 4 mm. Hg. If, however, the increase of pressure in this vein be considerable and continuous, the collateral circulation will develop and the albumin will disappear from the urine.

(3) The modified Walcher's position almost always provokes the passage of an albuminous urine.

(4) Whether or not the albumin appears in the urine at the conclusion of the experiment depends to a certain extent on the food previously ingested.

(5) The congestion of the kidney, so caused, may alter the permeability of the kidney to albumin for at least 24 hours, and it seems probable that the maximum effects may not be produced until some hours after the congestion has operated.

(6) Walcher's position appears to cause a delay in the excretion of indigocarmine. This effect is not produced until some hours after the position is adopted, but may persist for several days.

(7) Walcher's position may cause sugar to appear in the urine, even when albumin is absent, and, on one occasion, caused acetonuria.

(8) Red blood corpuscles may be found in the urines of patients after lying in Walcher's position, but casts have not been seen. It is, however, certain that even the slightest degree of venous congestion in the kidney may cause the passage of hyaline and granular casts, providing it be maintained for a sufficient period of time.

(9) A mild exaggeration of the normal curvature of the spine in women during the last few weeks of pregnancy may cause the passage of albumin.

(10) A slow respiration-rate in the standing position provokes albuminuria.

(11) The ingestion of the whites of ten eggs in 25 c.cm. of alcohol appears to be a useful test for functional albuminuria.

Conclusions.

I suggest that the albuminuria associated with pregnancy could be accounted for by mechanical means, chief of which are the lordosis, the diminished thoracic capacity associated with the latter months of pregnancy, and the weight of the uterus. It is certainly of interest that the addition of acetic acid to the cold urine of these patients frequently causes a definite precipitate. The lordosis alters the diameter of the inferior vena cava and affects the flow of blood according to the formula $F \propto \frac{vd\rho}{\mu}$ where F represents the flow, v the volume, ρ the specific gravity, and μ the viscosity of the blood, while d represents the diameter of the vein. A full stomach and a loaded colon may press on the inferior vena cava and be pressed on by the uterus when the woman lies in the recumbent position. The actual onset of the albuminuria is probably determined by the diet.

It cannot be too strongly emphasised that in about 20 per cent. of the cases of eclampsia the convulsions occur shortly after the urine is known to be free from albumin. Indeed, the patient may recover from the disease without ever passing an albuminous urine. Conversely, with suitable treatment, the albumin may almost disappear from the urine of a patient, but she may nevertheless develop eclampsia. Moreover, sections made from the kidneys of patients who die from eclampsia or accidental hæmorrhage but infrequently show the changes associated with either acute or chronic nephritis. It is surely illogical to postulate changes in the kidneys of patients who recover, which are not discovered in the presumably more serious cases who die, particularly when it is found impossible to demonstrate their presence by any known tests. Congestion of the kidneys, however, renders them permeable to albumin and more prone to nephritic changes.

Cook[8] expressed the opinion in 1924 that mechanical factors might play a part in the causation of the albuminuria of pregnancy, a view widely held during the second half of last century, but was unduly influenced by the fact that he found albumin in the urine secreted by both kidneys in the patients he examined. The description given by Paramore[9] of the microscopical appearances seen in the kidneys of patients who die from eclampsia agrees with those I have observed in a considerable number, but not all, cases, but these are precisely the changes caused by increasing the pressure in the renal vein.

If my view be correct, albuminuria, per se, bears no relationship to the toxæmias of pregnancy, except that disturbances of the metabolism and diet are factors in the causation of both. Albuminuria is an important symptom, but is only of serious concern when associated with a high or an increasing blood pressure. An increasing blood pressure is of grave significance even though no albumin be present in the urine, and it is a matter of real concern that the sphygmomanometer does not always form part of the equipment of an antenatal clinic.

Finally, I would suggest that (*a*) Walcher's position, (*b*) the ingestion of the whites of eight eggs in 25 c.cm. of alcohol on an empty stomach, are two tests which might be of value in testing the permeability of the kidneys of those women who suffer from albuminuria when pregnant, but whose kidneys at other times are normal, as judged by the usual kidney function tests.

I wish, in conclusion, to express my gratitude to Prof. E. B. Verney for his kindness to me, and for the facilities he has placed at my disposal at the Pharmacological Laboratory, University College, where these experiments were performed. He is, however, in no way responsible for any views expressed in this paper. I have also to thank Dr. W. G. Barnard, pathologist to University College Hospital, for cutting my sections, and for so generously helping me with his opinions, and Dr. A. D. Morris, the acting medical superintendent of Hammersmith Hospital, for his invaluable coöperation.

(*Bibliography at foot of next page.*)

Discussion, Summary, and Conclusions.

Obsolescent tuberculosis may remain quiescent in spite of exposure to asbestos dust. In one such case (female, aged 34) there had been nine years', and in another (male, aged 42) eight years' exposure. Both cases were verified post mortem. The focus was in mediastinal glands in one case and abdominal glands in the other.

In a total of 57 cases of pulmonary asbestosis there were ten of active tuberculosis, two of them fatal. Of the non-fatal cases, seven had tubercle bacilli in the sputum, the eighth had a well-marked apical cavity. The two fatal cases were verified post mortem. [Since this record was compiled another case has died and a post-mortem examination has been made; we believe two more also have died, but we have no record.]

It is probable that the cases with tuberculosis are more prone to seek advice and that our proportion with tuberculosis (17·5 per cent.) in pulmonary asbestosis represents a maximum. The proportion found amongst operatives actually at work (vide Merewether's series) probably represents a *minimum* (0·8 per cent.). At any rate, there is evidence that the incidence of active pulmonary tuberculosis in a mixed group of asbestos workers is by no means negligible.

Of our total of 57 cases of pulmonary asbestosis, 17 are known to be still at work, 10 are dead, and most of the remainder have discontinued asbestos work.

Of the ten cases of active tuberculosis, nine were females. The ages of these cases (when first seen) were 19, 20, 21, 31, 32, 33, 35, 38, and 40 respectively. The one male was aged 42.

With regard to the length of exposure, one female, aged 19, began work at the age of 16. She worked for three months picking up bobbins (not exposed to dust), then discontinued work for 18 months, and returned for further three months to spinning and weaving. One (aged 21) had had 15 months' exposure. The remaining seven had had periods varying from four to 13 years, and in four instances they had started work in the factory before the age of 21. That is, of these nine females six had started work before this age. The male case had had seven years' exposure.

Clinically, the ten active cases were classified as follows: generalised tuberculosis as a terminal event (one female); acute phthisis (two females); extensive subclavicular infiltration of a less acute type (two females); chronic fibroid phthisis (four females, one male).

In the two active cases which came to the post-mortem room, the tuberculosis was of the acute caseous type, with little or no sign of limitation of disease by fibrous tissue. One case showed generalised terminal spread.

Histologically, the tuberculous lesions in the two fatal cases were characterised by marked caseation. In the portions of lung where the lesions had not advanced far the caseous areas were peribronchial in distribution. There were very few giant cells and little round-cellular infiltration or connective tissue formation around the periphery of the nodules—in short, caseation and little else. Asbestos fibres were present in the caseous areas as well as asbestosis bodies. In one case (the third of the four fatal ones described above), tubercle bacilli in clumps and asbestosis bodies were found lying side by side. It is possible, but unlikely, that asbestos fibres can have invaded the caseous areas. It seems more probable that as a result of secondary infection with *B. tuberculosis* patches of caseation had developed around the minute areas containing fibres and bodies.

Gardner and Cummings, working with a strain of *B. tuberculosis* of feeble virulence, noted that in guinea-pigs the development of tuberculous caseation in an asbestosis area resulted in the destruction of the asbestosis bodies.[5] Their animals had, however, been kept alive for a long time. It is, of course, possible that the tuberculous lesions noted in our cases were more recent than those in their animals, and that the asbestosis bodies therefore had not had sufficiently long exposure to effect complete destruction. There is also a possibility that the reaction of the tissue in the two cases is dissimilar.

Histologically, in the lesions of pulmonary asbestosis the asbestosis (foreign body) giant-cell is a marked characteristic. Situated in the early formed granulation tissue areas, this cell generally contains small asbestos fibres and sometimes actual asbestosis bodies. It must be carefully distinguished from the true tuberculosis giant-cell. Tuberculosis infection cannot be assumed on histological grounds alone without the finding of intact tubercle bacilli.

It is impossible to draw definite conclusions from this small record as to whether tuberculosis or asbestosis was the antecedent disease. In two cases the exposure to asbestos dust preceded the onset of signs of tuberculosis by 6 and 15 months respectively; in the others the exposure preceded the tuberculosis by from 4 to 13 years.

Our acknowledgments are due to Dr. Leonard Williams, medical officer of health and tuberculosis officer for Barking, for his constant coöperation, without which our investigations would have been impossible.

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DIRECT LARYNGOSCOPY AND ASPIRATION IN LARYNGEAL DIPHTHERIA.

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"THE coexistence of laryngeal symptoms with even a small amount of unlikely looking exudate on the fauces may be taken for practical purposes as a proof of diphtheria." Ker[1] thus expresses what has proved to be a satisfactory rule for the diagnosis of diphtheritic laryngitis. It is well to remember, however, that certain coccal infections are occasionally met with in which laryngeal symptoms are associated with deposit on the fauces. In the absence of faucial exudate, and indications of diphtheritic infection of the nose, the ætiological factor, giving rise to symptoms of "croup" in a child affords a difficult and anxious problem. The diagnosis between catarrhal inflammation of the larynx and primary diphtheritic infection does not rest on a satisfactory basis. Obstructive symptoms arising from a foreign body impacted in the back of the throat, even after two days close observation, have been known to mislead an experienced clinician. It is difficult to understand why the laryngoscope has not been employed as a routine in fever hospital practice.

Gover,[2] in 1918, from his experience of direct laryngoscopy in 189 cases of "croup" admitted to the Willard Parker Hospital, came to the following conclusion: "There is no other method nearly as accurate in the diagnosis of laryngeal diphtheria." He reports that in 112 cases with membrane in the larynx only 59 had membrane on the fauces. It is worth noting that in one-fourth of the cases showing membrane in the larynx the respiratory difficulty was slight, whilst severe symptoms of croup were noted in one-sixth of the group not showing membrane in the larynx.

The laryngoscope has been employed at the City Hospital in the diagnosis of all doubtful cases of laryngitis in children during the past two years.

DIRECT LARYNGOSCOPY.

The apparatus and method are as follows:—

Apparatus.—Laryngoscopes, Chevalier Jackson pattern, infant and child sizes. Spare lamp carriers, *and* spare bulbs. Dry cell battery with rheostat. Six feet of flexible cable. Swab sticks eight inches long with wool tip firmly attached. Tongue depressor.

Method.—The child, firmly enveloped in a blanket, is placed on the operating table in a recumbent position. The height of the table is adjusted to suit the operator. A sandbag four inches thick is placed under the shoulders. The head is then flexed as far back as possible. One nurse, standing on the right of the patient, steadies the head in the midline by a hand placed on either side. It is not necessary to hang the head over the edge of the table. Another nurse, on the left of the patient, controls the movements of the limbs and trunk. Partial darkening of the room facilitates the inspection of the larynx.

The operator dons face mask and goggles (the latter suitably treated to prevent condensation), opens the mouth with a tongue depressor and rapidly slides the laryngoscope, held in the left hand, over the dorsum of the tongue in the midline until the epiglottis is picked up. The presence of membrane low down on the posterior pharyngeal wall and on the epiglottis is noted. The tip of the laryngoscope is then dipped under the epiglottis which is hooked back and the instrument slid down to the root. A considerable amount of pressure on the handle of the laryngoscope may be required at this stage to obtain a view of the entire glottis. Once the epiglottis is hooked back the child breathes with *comfort* throughout the examination. In addition to the appearance of the upper aspect of the larynx and the true cords particular attention should be paid to the subglottic region.

The main features of interest are: (1) the presence of membrane; (2) the *degree of congestion and œdema*, particularly subglottic; (3) the amount of muco-purulent secretion; (4) evidence of ulceration; and (5) the presence of a foreign body. A culture is taken by inserting a swab stick eight inches long through the lumen of the laryngoscope. The firmly attached *cotton-wool tip, in addition to being* gently rubbed over the upper aspect of the larynx, should be inserted into the subglottic region as spasm relaxes.

The laryngoscope is then rapidly withdrawn.

The employment of the laryngoscope in some 80 patients from 1 to 12 years of age has shown that the technique is simple, easily acquired, and devoid of harm. To actually see pathological changes which otherwise could only have been surmised has been not only a source of great satisfaction but extremely educative. Where there is typical faucial exudate the use of the laryngoscope is superfluous in arriving at a diagnosis, but has proved of value in deciding what operative procedure should be followed.

In the recognition of primary diphtheritic laryngitis or of the presence of a foreign body in the larynx this procedure is of great value. In 15 children admitted to hospital suspected to be suffering from laryngeal diphtheria there was no clinical evidence of a diphtheritic infection of the fauces or nose. The laryngoscope revealed membrane in the larynx in five of these cases. The membrane was situated both above and below the true cords in two patients, whilst, in the remaining three it was confined to the subglottic region. In a sixth case, whilst no definite membrane was seen, a culture from the larynx showed numerous morphological Klebs-Löffler bacilli. The symptoms of croup were severe in only two of the six cases. The absence of membrane, accompanied by negative cultures, led to a diagnosis of catarrhal spasm or catarrhal laryngitis in the remaining nine patients. Two of these children suffered from persistent and alarming dyspnœa: one required intubation.

One child with no exudate on the fauces, but with a profuse purulent rhinitis and severe symptoms of croup, showed extensive membrane in the larynx.

In another case the presence of exudate on the tonsils, accompanied by severe obstructive symptoms eventually necessitating tracheotomy, might have been regarded as diphtheritic had not laryngoscopy revealed a grossly congested and œdematous larynx, without typical membrane, but with profuse secretion and superficial ulceration. Repeated negative laryngeal cultures corroborated the negative faucial findings. Cultures from the nose showed a few morphological diphtheria bacilli. A staphylococcus was regarded as the infecting organism.

TREATMENT BY ASPIRATION.

Examination of the larynx has shown that the dyspnœa in diphtheritic laryngitis is due to one or other, or a combination of the following factors: membrane either attached, or more commonly partially detached, and drawn into the lumen of the glottis; inflammatory œdema in the subglottic region; tenacious muco-purulent secretion; glottic spasm.

In 29 patients Gover[2] removed loose membrane from the larynx with forceps, resulting in marked respiratory relief in 23; in 14 of these the relief was permanent. He noted that the removal of the membrane was followed by little if any hæmorrhage.

In 1922 Thomson[3] reported favourable results in 30 severe cases of laryngeal diphtheria following the removal of loose membrane and muco-purulent secretion by means of a gauze plug attached to an applicator. This was passed through the lumen of the laryngoscope into the subglottic region and immediately withdrawn; surprising relief was obtained. The applicator treatment was repeated as often as indications arose. He adduces evidence to show that this procedure saved the necessity of intubation in many patients, and resulted in a considerable reduction in mortality. No ill-effects were noted.

Gover and Hardman,[4] in 1923, reported very favourably on six months' experience of the routine employment of suction in the treatment of 50 cases of croup in the wards of the Willard Parker Hospital. Either metal tubes or silk elastic catheters were passed into the larynx through the lumen of the laryngoscope, and suction applied by means of an electric pump. Whilst guarded in their conclusions, they formed the opinion that the treatment by suction markedly lessened the number of cases requiring intubation, and thus influenced the mortality.

Litchfield and Hardman,[5] in 1923, from their experience in the croup service of the same New York hospital, concluded that the aspiration method of treatment is especially suited for cases in which the membrane is situated low down in the trachea. They are also of the opinion that a lowered mortality resulted.

In his report to the Metropolitan Asylums' Board in 1929, Joe,[6] from personal observations at the Willard Parker Hospital, states: "The aspiration treatment of laryngeal diphtheria makes a distinct advance on the methods presently at our disposal for dealing with this condition." Apparently the physicians in New York and Boston who had prolonged experience of the method were unanimously in favour of it.

Apparatus.—Electric suction pump. Wash bottle. Three laryngeal suction-tubes, Willard Parker Hospital model, with terminal aperture, and an external diameter of 5 mm., 6 mm., and 7 mm., respectively. Three feet of stout rubber tubing. Sterile paraffin. Basin of sterile water.

Treatment by aspiration was first tried in the wards of the City Hospital two years ago. Whilst the metal suction-tubes of simple design originally employed functioned reasonably well, it was soon realised that a simple water pump was inadequate. The electrically driven Atmos pump, in use for the past year, has proved highly satisfactory. The pump has been fitted on a special base which includes the wash bottle.

Method.—Water having been poured into the wash bottle to a depth of two inches the hinged airtight lid is screwed down, and the exit tube screwed on to the pump nipple. The inlet tube is attached to a suction-tube of suitable size. Before inserting the laryngoscope sterile water should be drawn through the suction-tube to see that the apparatus is functioning perfectly. The glottis having been exposed, the suction-tube, lubricated with sterile paraffin, is introduced through the lumen of the laryngoscope and the upper aperture of the larynx rapidly cleared of membrane. On relaxation of the glottic spasm the tube should be slipped between the true cords, and membrane and secretion removed from the subglottic region. The tube is then withdrawn—sterile water sucked through the lumen—and reintroduced, this time well down into the trachea. Three or four applications may be required to clear the airway. The whole operation can be performed very rapidly. An anæsthetic is not required. Hæmorrhage following the separation of membrane has not been a troublesome feature. Should bleeding arise the local application of adrenalin is recommended.

CASES SUBJECTED TO ASPIRATION.

Thirty-seven patients with moderate or severe symptoms of croup have been aspirated. Suction was performed once in 30 cases; on two occasions in six patients, and three times in one child. Membrane was removed in 24 patients, whilst in seven others muco-purulent secretion only was aspirated. In six children nothing was obtained. Aspiration resulted in immediate relief in ten patients. In other ten cases the breathing was definitely easier following the removal of membrane or secretion. No definite benefit from the procedure was noted in 17 patients, three of whom were suffering from a tracheo-bronchial involvement. Nine children required operation following aspiration.

Aspiration saved the necessity for intubation or tracheotomy in seven patients. The following is a typical case:—

A boy, aged 6 years, admitted to hospital at 4 P.M. on Jan. 22nd, 1931, had been ill three days. On admission moderate persistent dyspnœa with retraction of intercostal spaces and epigastrium was noted. The colour was good. The pulse was rapid, but of good volume, and not of paradoxus type. There was extensive membrane covering both tonsils, the faucial pillars, and on the posterior pharyngeal wall. On admission, 10,000 units of antitoxin were injected into a vein, and 20,000 units intramuscularly. As the respiratory distress was not regarded as severe enough to warrant operation he was tided over the night with steam and sedatives. At 9.30 A.M. the following morning the dyspnœa was severe, the colour unsatisfactory, and pulsus paradoxus present. Immediate operative measures were indicated. Examination revealed extensive thick membrane covering the upper aspect of larynx, flapping between the true cords, and encroaching on the subglottic space. The membrane appeared loosely attached. There was no obvious œdema. Aspiration resulted in the removal of 40 to 50 fragments of membrane, several one to two centimetres or more square. During the process paroxysms of coughing resulted in the detachment of low tracheal membrane, which, on showing at the glottis, was promptly removed by suction. There was immediate and complete relief. The child was returned to bed breathing sweetly, and promptly fell asleep. Whilst slight huskiness persisted for a few days no further respiratory difficulty arose. The child recovered.

In two patients who had been intubated on admission to hospital, treatment by suction saved reintubation. The following are the main features of one case:—

A boy, aged 2 years, was admitted to hospital on Feb. 18th, 1931, the alleged second day of illness. Symptoms of severe respiratory obstruction were present on admission. There was a patchy exudate on both tonsils but no rhinitis. Examination of the larynx revealed moderate œdema and congestion, but no membrane was seen. Owing to œdema and absence of visible membrane the case was not considered suitable for aspiration. A No. 1 intubation tube was inserted. The tube was removed on the 23rd. Dyspnœa reappeared on the 25th and persisted throughout the night. The child's condition on the morning of the 26th urgently required operative relief. Examination of the larynx showed that the respiratory difficulty was due to fragments of membrane obstructing the glottis. The membrane was removed by suction with immediate and complete relief. The child gave no further trouble and made an uninterrupted recovery.

TRACHEO-BRONCHIAL DIPHTHERIA.

In five children the diphtheritic infection had spread from the fauces and larynx into the trachea and bronchi. All five showed typical clinical signs of this dreaded condition on admission to hospital. Two cases, practically moribund, were tracheotomied immediately. Both died within a few hours. The remaining three patients were aspirated. Whilst numerous fragments of membrane, one piece 7 cm. long, were removed from the larynx and trachea in each case, yet the dyspnœa persisted. Aspiration through a laryngoscope is apparently not effective where the membrane is located in the bronchial tree. All three patients died within 24 hours of entering the ward.

Whilst Gover mentions the employment of suction through a bronchoscope in four cases of tracheo-bronchial diphtheria, followed by recovery in two, those interested in the aspiration treatment of this very dangerous condition should refer to the papers by Lynah.[7]

ANTITOXIN DOSAGE.

From 8000 to 10,000 units of antitoxin were injected intravenously on admission in 12 patients with marked symptoms of croup. The total antitoxin dosage in a series of 50 cases of laryngeal diphtheria varied from 16,000 units to a maximum of 50,000 units. Six of the cases in which aspiration proved so efficacious had received an intravenous injection of antitoxin.

Gover and Hardman stress the importance of administering diphtheria antitoxic serum intravenously in cases subjected to suction. In the tracheo-bronchial type of case the injection of antitoxin into the blood stream is essential.

DANGER OF ASPIRATION TREATMENT.

In the hands of an experienced operator laryngoscopy followed by suction may be regarded as a safe procedure. That it is well to carefully consider the cardiac condition before subjecting the child to the strain of repeated aspirations is shown by the following unfortunate incident:—

A robust boy, aged 2 years, was admitted to hospital at 3.20 P.M. on April 26th, on the third day of illness, with severe symptoms of croup. The colour was unsatisfactory, and the pulse rapid, soft, and of paradoxus type. There was an extensive sheet of membrane on the posterior pharyngeal wall, but no rhinitis. Laryngoscopic examination showed that the upper aspect of the larynx was covered with a thick sheet of membrane. Membrane was flapping between the cords, and more was seen in the subglottic region. Well-marked subglottic œdema was noted. Aspiration performed at 3.30 P.M. resulted in the removal of numerous fragments of membrane and tenacious muco-purulent secretion. Whilst considerable respiratory relief resulted, dyspnœa still persisted. Ten thousand units of antitoxin having been injected into a vein, and 20,000 units intramuscularly, the child was returned to bed. At 6 P.M. it was again considered necessary to aspirate. A few fragments of membrane and some muco-purulent secretion were obtained from the trachea. It was noted that the right vocal cord was not moving freely. Dyspnœa still persisted. The breathing became very distressed about 6 A.M. the following morning; aspiration again applied proved fatal, the child dying on the table *from cardiac failure.* Where subglottic œdema is the main cause of the respiratory distress operative measures are apparently preferable to repeated attempts at aspiration.

INTUBATION BY DIRECT VISION.

In the practice of intubation by the O'Dwyer method the sense of touch is the guiding factor. In the hands of an expert the operation, in by far the majority of patients, can be performed with great rapidity and the minimum of trauma. In many cases it has much to commend it in preference to tracheotomy. Occasionally, owing to gross œdema of the larynx obscuring the landmarks, or else owing to an unusual configuration of the pharynx, considerable difficulty may be experienced in inserting a tube into the larynx.

The employment of the laryngoscope suggested the introduction of the intubation tube into the glottis under visual guidance. A suitable introducer has been designed for this purpose. The ease and safety which attends this method of insertion of the tube into the larynx may perhaps be considered an advance on the O'Dwyer technique.

STATISTICAL EVIDENCE.

At least five years' experience of aspiration treatment will be required before satisfactory statistical evidence of the value of the method can be expected. In the Table the results obtained from August 1st, 1930, to July 31st, 1931, are contrasted with those of eight preceding years.

That only 20·5 per cent. of patients suffering from diphtheritic laryngitis admitted to hospital during the year under review required operation, as compared with an average operation-rate of 45 per cent. for the preceding eight years, might be regarded, even allowing for the mild type of infection, as statistically significant. Clinical evidence confirms this view.

The slightly lower laryngeal fatality-rate merely reflects the unusually low death-rate from all forms of diphtheria during the period of the investigation. It is unfortunate that the employment of aspiration treatment should have coincided with such a mild phase of the disease.

Whilst a study of the available American statistics shows that treatment by aspiration has resulted in diminution of the number of laryngeal cases requiring intubation, there is no convincing evidence that the method has reduced the diphtheria fatality-rate.

CONCLUSIONS.

1. Where symptoms of croup are suspected to be due to diphtheritic infection the laryngoscope, supplemented by bacteriological examination of the larynx, affords the most accurate method of diagnosis.

2. In severe diphtheritic infection inspection of the larynx will indicate the best method of relieving the respiratory distress.

3. Aspiration is indicated when dyspnœa is due to extensive membrane formation. Where gross subglottic œdema is the cause of the respiratory difficulty, then operative measures are necessary.

4. Fewer cases of laryngeal diphtheria require operation if aspiration is judiciously employed.

5. Direct laryngoscopy permits of the introduction of an intubation tube by visual guidance, thus diminishing the risk of trauma associated with the indirect method of intubation.

6. Whilst as yet satisfactory statistical evidence is lacking, one only requires to witness the dramatic relief following suction in certain cases of severe laryngeal diphtheria to form the opinion that this method of treatment is worthy of serious consideration.

Year	1922.	1923.	1924.	1925.	1926.	1927.	1928.	1929.	1930–31.
Total number of diphtheria patients admitted to hospital*	767	711	702	845	527	578	602	1135	*1014*
Fatality-rate per cent. for diphtheria cases* ..	6·6	8·3	9·1	7·9	6·6	6·9	4·3	4·2	*3·2*
Number of cases of laryngeal diphtheria.. ..	87	65	83	81	50	60	55	98	*78*
Number of cases of laryngeal diphtheria intubated or tracheotomied	39	39	40	41	30	25	15	32	*16*
Per cent. of laryngeal diphtheria cases undergoing operation	44·8	60·0	48·2	50·6	60·0	41·6	27·2	32·6	*20·5*
Laryngeal diphtheria deaths in which no operation performed†	2	2	4	5	2	3	4	4	*4*
Laryngeal diphtheria fatality-rate per cent. ..	26·1	29·2	24·1	24·7	21·0	23·3	14·5	13·3	*12·8*
Diphtheria fatality-rate per cent. excluding laryngeal cases	4·1	6·2	7·1	6·2	5·0	5·0	3·3	3·3	*2·3*

* Carriers and bacteriological diphtheria not included. † Cases moribund on admission to hospital.

I should like to express my appreciation of the assistance afforded me in this investigation by Dr. A. L. K. Rankine, senior assistant medical officer to the hospital.

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SWANSEA HOSPITAL.—The report of the Swansea General and Eye Hospital for the year ended Dec. 31st, 1930, has just been issued. There were 287 in-patients and 33,857 out-patients, an increase of 5000 over the preceding year; each patient stayed an average of 21·25 days, and the average cost per occupied bed was £140 18*s.* There was a waiting-list of 789, and further accommodation will have to be provided. The ordinary income was £11,850, and ordinary expenditure £50,501.

CLINICAL AND LABORATORY NOTES

SOME OBSERVATIONS ON NEURASTHENIA AND SHELL-SHOCK.

BY ERIC COPLANS, M.R.C.S. ENG.,

MEDICAL REFEREE, MINISTRY OF PENSIONS, BATTERSEA AND WANDSWORTH AREAS; CONSULTING PHYSICIAN, JOINT CIVIL SERVICES HEALTH COMMITTEE.

FROM 1926 to 1930 I was in medical charge of the London patients of the Ex-Services Welfare Society, a war charity which receives only cases of neurasthenia and so-called shell-shock attributable to war service, Dr. E. Mapother being consulting physician to the Society. During this time there passed through my hands 527 of these ex-servicemen, their periods of stay in the home averaging about three months. In addition I interviewed and examined a large number of applicants whom it was impossible to admit to the Society's various homes.

Coming as they did to me at least eight years after the armistice, they afforded an interesting opportunity of studying the persistence of post-war neuroses, and I was able to form certain conclusions as to the prolonged effects, sociological and physical, of war suffering upon the civilian soldier. At the very outset it was impossible not to be impressed by the fact that fully 80 per cent. of the cases that came under survey were unskilled men of the labourer type with no trade to their hands. It was rare indeed to have to deal with an artisan or craftsman—a fact that, as will be seen later, considerably influenced the treatment.

The post-war history of these cases showed but little variation. Returning from military service to some sort of occupation, the applicant tells the story of periodic breakdowns at his work. These were found to be referable to any or all of the following causes:

Inability to master a task, however simple.
Actual weakness and fatigue.
Inability to concentrate.
Ill-temper and quarrels with anybody and everybody, including the "boss."

Many of these men had no pension whatever. There was no wound to show, no loss of eye or limb, and to the ordinary observer they presented in some cases a picture of health. It was the mind that had been wounded, and only their families and intimate associates have the least idea of their sufferings. They live on the frontiers of fear, their days are a torture, and often through the night they endure again the horrors of war. It is not unusual to be called to such a man sitting trembling with ashen face on the side of his bed, refusing to sleep, since sleep brings no peace but lifts a curtain on the fearful drama of the past.

Clinically they usually presented this picture:

Tremors of hands, tongue, and eyelids.
Increased knee-jerk.
Clammy moist hands.
Tachycardia.

In reference to the last sign, I recall that we dealt at Mount Vernon Military Heart Hospital with a large number of tachycardias, which were labelled D.A.H. In the light of subsequent experience, I have formed the opinion that these cases were not D.A.H. at all. They were neurasthenia and shell-shock, although in some cases the "shell" was an irate sergeant-major in the home counties.

The mental attitude varied. There was the truculent type, from whom it was difficult to elicit any information at all and who seemed to be at war with the world. It is not surprising that there turned up from time to time among the patients a genuine honest-to-god paranoia. And of course there were not a few malingerers. Some of these had learned a few tricks at the famous Ministry nerve hospital at Orpington, a favourite one being "chucking a dummy"—i.e., fit. We used to call these "bluff-orpingtons." But chiefly it was the anxiety type that one encountered: fear of mankind, fear of traffic, fear of himself. And it was this type that proved most amenable to treatment.

I have no desire to quarrel with the psychoanalyst, but when a man comes to you broken in mind and fortune, it seems useless to question him for days, and then hope to cure him by pointing out that the cause of his trouble is something that happened on the Menin Road some years ago. The men that came to the Society were in every sense broken, mentally bankrupt and often without means of support. Usually there was a wife and family and some raging creditors in the background. The Society realised from the start that it was idle to attempt to cure a man while his wife and family were starving; so they adopted the whole bunch—man, family, and very often the creditors.

After a period of observation and building up, the man was sent down to an industrial training centre, where under sympathetic but firm tutelage he was taught, by very gradual stages, to become self-supporting. He had nothing to worry about. His wife and family received an allowance, and his creditors were pacified. If it was felt he was entitled to a pension the issue was opened with the Ministry, whose sympathetic coöperation with the Society's expert resulted in the granting of pensions running into many thousands of pounds.

By such means these war derelicts, their self-confidence restored, were enabled once again to face the battle of life as useful citizens.

CARCINOMA OF THE ŒSOPHAGUS

ASSOCIATED WITH CARCINOMA OF THE SIGMOID COLON; RUPTURE OF THE AORTA BY THE ŒSOPHAGEAL CANCER.

BY CYRIL J. POLSON, M.D. BIRM., M.R.C.P. LOND.,

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AND

WM. McINTOSH, M.B. GLASG.,

DEPUTY MEDICAL SUPERINTENDENT OF THE HOSPITAL.

THE present case, as indicated by the above title, has two notable features.

The patient (20956), a male of 71, was admitted to St. James's Hospital on August 25th, 1931. He stated that he had had sciatica for six months and had been unable to swallow solid food for five months. It felt as if solids only reached the lower part of his neck and was then returned. He had always been able to swallow liquids and a week prior to admission he was once more able to swallow solids. Death occurred abruptly on August 28th from a violent hæmatemesis.

An *autopsy* was performed next day, 15 hours after death. The body was that of a wasted man who looked his age. The left pleural sac contained a quantity of clear yellow fluid which had collapsed the left lung. The right sac was obliterated by adhesions. At the level of the bifurcation of the trachea the œsophagus presented a fusiform dilatation to which the arch and upper part of the descending aorta were firmly adherent. The œsophagus was opened in the mid-line posteriorly revealing an annular carcinoma which commenced 5 in. below the glottis and extended for 2¼ in. down the œsophagus. It was an ulcerated, fungating growth which encircled the gut and thickened its wall. A tongue-like mass of blood clot was attached to the left-hand wall and close to the attachment an aperture was detected. A probe was passed through it into the aorta, entering at a point which corresponded with the junction of the arch and the descending aorta. In this region the aortic intima, over a circular area 0·7 in. in diameter, had a purple colour and was slightly raised; an aperture, 1/32 in. wide, was seen in the centre of the patch. This was the aortic stoma of the abnormal passage.

The well-recognised though unusual lymphatic permeation of the œsophageal wall was present, with the formation of three such secondary deposits 2 in. above and 1 in. and 1¾ in. below the primary growth. The upper one was oval, slightly raised, and had diameters of 0·4 in. and 0·2 in. It was not ulcerated but had approached the lumen closely and presented as a whitish patch in the œsophageal wall. Its centre was depressed. Secondary deposits were also found in the lymphatic glands on the right of the trachea and in those related to the cardio-œsophageal junction.

The stomach contained recently clotted blood (29 oz.) forming a cast of the interior of the viscus. The sigmoid colon, at the level of the brim of the pelvis, was kinked and contracted. When it was opened, an annular cancer was found completely encircling the gut and extending for 1¼ in. in its long axis. A second growth lay 1 in. above. This was a flat oval cancer, 1½ in. by 1 in., with a raised, slightly rolled margin; the central four-fifths were depressed and ulcerated. The bowel above the annular cancer was hypertrophied and dilated; below it was also hypertrophied and bore several diverticula, ¾ in. by ½ in. in their diameters. A small benign polyp, ¼ in. long, was present two inches below the annular cancer.

The liver contained a single secondary growth, 1½ in. in diameter, which projected from the superior surface of the left lobe. It was nodular and umbilicated. The brain was not examined and the other organs presented no macroscopic abnormality.

Microscopical Examination.—The primary growth in the œsophagus was a non-keratinising squamous carcinoma and the secondary deposits in the œsophageal wall and lymphatic glands were of identical type. Lymphatic permeation of the œsophageal wall, as figured and described by L. Aschoff,[1] was well illustrated in the specimens. A rectangular portion of the wall of the sigmoid colon, including a portion of both tumours, was removed for microscopical study. Each growth was an intestinal adeno-carcinoma of the usual type. The intervening bowel, 0·8 in. long, contained no cancer; its muscular layer was hypertrophied. The secondary growth in the liver was identical with the primary growth in the colon.

The clinical picture was dominated by the signs and symptoms of œsophageal obstruction. At no time was there clinical evidence of a growth in the colon, unless it was the cause of the "sciatica." This is less surprising than would appear at first sight, for the patient had had scarcely any solid food for five months and therefore little residue in his intestine. Moreover, any suggestion of obstruction of the bowel would have been dismissed as simple constipation in view of the predominance of the œsophageal lesion. In the absence of a radiological examination (the patient was too ill) the diagnosis at the end was that of rupture of an aortic aneurysm.

The separate entity of the œsophageal and colon carcinomata was easy of proof, since the linings of these structures are of different types. It was also a simple matter to demonstrate the relation between the primary and secondary growths in the œsophagus, since lymphatic permeation of the wall was unmistakable. On the other hand, it was not possible to demonstrate a similar relationship between the two growths in the colon. Nevertheless, the view is taken that the annular growth was the primary and the oval one secondary to it.

We are indebted to Dr. John Dick, medical superintendent of St. James's Hospital, for permission to utilise the records.

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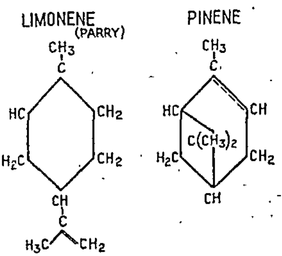
[1] Pathologische Anatomie, 6th ed., Jena, 1923, vol. ii., p. 705.

DERMATITIS FROM ORANGES AND LEMONS.

By Sibyl G. Horner (née Overton), M.B. Lond., D.P.H.,

H.M. MEDICAL INSPECTOR OF FACTORIES.

An inquiry undertaken in the marmalade season of this year revealed that a number of workers preparing oranges and lemons presented a condition of dermatitis—often of a disabling degree. Clinically, two types of reaction were noted—acid "holes" with or without a dermatitis. It has generally been concluded that the acidity of the juices of these fruits was responsible for both conditions, but the fact that the skin condition of workers at processes where the hands and arms became drenched with fruit juice was better than that of "peelers" gave food for thought. It was certainly among the "peelers" that a disabling dermatitis seemed most often to occur, and in this occupation there is practically no contact with the juice of the fruit. The skin, however, is predisposed to injury by trauma from knives and other implements and from frequent immersion in water. Any other predisposing factor, such as friction of the wrists and forearms—which is a factor varying with the individual—is of importance in the causation of dermatitis among "peelers." It seemed likely, however, that some substance in the peel of oranges and lemons was a more aggressive irritant than the citric acid of the fruit hearts.



The chemistry of the essential oil of the orange is of interest. Three essential oils are obtained from the orange tree—neroli oil from the flower, petit grain oil from the leaves and shoots, while the term "orange oil" is reserved for the oil extracted from the peel. Orange oil and lemon oil consist of over 90 per cent. dextro-limonene. Now limonene is a terpene—a hydrocarbon group whose irritant action on the skin is exampled in the turpentines. Moreover, pinene, believed by certain American investigators to be responsible for the irritant action of some turpentines on the skin, is not only very closely related to limonene but is also present in lemon oil, together with camphene, and octylene (a hydrocarbon differing from the terpenes). So nearly are lemon oil and turpentine related that the latter was at one time a common adulterant for lemon oil. Aldehydes are present in both orange and lemon oil, but the quantity of these in sweet oranges is greater than in the bitter variety.

It is suggested, then, that limonene might well be the cause of dermatitis in lemon and orange peelers. The rind of these fruits, particularly the bitter orange, contains a number of oil vessels which readily become ruptured on handling—a risk that is augmented by the practice of steaming the fruit preliminary to peeling. It was found that where the exposed skin was oiled before beginning work on peeling fruit, injury was very rarely sustained, even after and found that with continuous irrigation he could distend the posterior urethra enough to cut from there through the bladder neck.

MEDICAL SOCIETY OF LONDON.

AT a meeting of this society on Oct. 26th, with Mr. HERBERT TILLEY, the President, in the chair, a discussion on the problems presented by recent experimental and clinical observations on

Blood Transfusion

was opened by Prof. ALEXANDER FLEMING. After briefly outlining the history of the subject Prof. Fleming discussed the new nomenclature which has been applied to the blood groups, and pointed out fallacies which may arise in determining the group of a patient. On the question of auto-agglutination, he said that although such a process might occur at room temperature it could easily be eliminated by working at blood-heat. Much work had been done on sub-groups, and Landsteiner had shown that many such groups existed, although their importance could not yet be estimated. The age factor was of great importance when dealing with transfusion in infants, since it had been determined that the group was fixed in only 16 per cent. of cases between the ages of 1 and 3 months. Finally, after referring to the three fundamental methods of transfusion—i.e., whole blood, citrated blood, and defibrinated blood—and their relative merits, Prof. Fleming concluded by discussing immuno-transfusion, and by mentioning two phenomena which he said might have a practical bearing on transfusion: (1) that the bactericidal power of the blood may be increased by injecting 2·5 c.cm. of nuclein into the donor before bleeding; (2) that if hypertonic saline (10 per cent.) is injected into the donor the bactericidal properties are much raised.

Dr. H. LETHEBY TIDY said that blood transfusion was indicated in various anæmias when the hæmoglobin content of the blood had fallen as low as 30 per cent. This must be taken only as a relative figure, but would act as a guide when in doubt. It was often stated that the coagulation time in anæmia was increased and that transfusion reduced it; such a statement had no experimental support and was untrue. It was his experience that the effect of transfusion on the blood pressure was to cause a rise as far as 120–130 mm. Hg, but that it was quite impossible to raise it above that level; the argument that a clot might be disturbed and cause recurrence of hæmorrhage after transfusion was thus probably erroneous. At St. Thomas's Hospital it was generally held that the increase of resistance to infection after transfusion was negligible. In conclusion, Dr. Tidy mentioned some of the conditions in which blood transfusion was of special service as a therapeutic measure. (1) In hæmophilia, although the effect was transient, only lasting three to five days, its effect was dramatic if given at the right moment. There was no need to perform blood grouping in hæmophilia. (2) In malæna neonatorum an intramuscular injection was most effective. (3) In jaundice it was believed that the coagulation time was increased; this was not so, except as a rare terminal event, but it was known that the clot in these cases was very soft, and similar to that found in purpura. (4) In primary purpura, splenectomy, although the ideal treatment, was often impossible, and transfusion proved to be the correct treatment. (5) In certain blood diseases, especially aplastic anæmia and certain chronic anæmias, transfusion was of great service, but not in leukæmia or pernicious anæmia.

Mr. GEOFFREY KEYNES objected to the distinction between "whole blood" and "citrated blood," since, he said, the amount of sodium citrate required (1 g. per 450 c.cm. blood) was destroyed within ten minutes of its entrance into the body, and was therefore unlikely to cause the many evil effects with which it was credited. Mr. Keynes declared himself to be "an unrepentant citrationist." The most satisfactory apparatus was that which was the easiest to understand, and he considered that French's needle was still the most useful for withdrawing blood from the donor, especially as its introduction could be further simplified by securing the anterior wall of the vein, just proximal to the point of introduction, with a needle. Special methods were justified in transfusing infants, but here again simplicity should be the keynote. The chief development of recent years was the great increase in the extent to which transfusion was used, and this was reflected by the statistics of the London Blood Transfusion Service, which was instituted nine years ago. The figures showed a great rise in the number of hospitals using the service, and in the number of different conditions for which transfusion was used. It seemed that certain clinicians still used transfusion in pernicious anæmia, although it had been given up by most authorities. A problem still to be solved was, what was the effect on the donors after repeated bleeding, and how often could they be bled? The existing practice of some institutions of always calling upon a group O donor instead of determining the exact groups of the patient was very unsatisfactory, because it entailed a shortage of such donors.

In the discussion which followed, Dr. F. PARKES WEBER demonstrated a special apparatus (athrombit) for the use of whole blood by the direct method, and supported its adoption by the statement that there had been no rigors following its use in 20 cases. Mr. JULIAN TAYLOR spoke of the distinction between the effect of transfusion in shock and in hæmorrhage, and Dr. B. E. SCHLESINGER demonstrated the use of transfusion in pneumococcal septicæmia. Other speakers emphasised the importance of transfusion in promoting metabolism in infants, and in toxæmias—especially the 48-hour toxæmia of burns, and the acute intestinal intoxication of infants.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—On Monday next a course in proctology begins at the Gordon Hospital (one week with afternoon clinics), a course in medicine, surgery, and gynæcology at the Royal Waterloo Hospital (three weeks, with morning and afternoon work), and a course in neurology at the West End Hospital for Nervous Diseases (four weeks, daily at 5 P.M.). Special courses to the end of the year are as follows: ophthalmology at the Royal Westminster Ophthalmic Hospital each afternoon from Nov. 9th to 28th; diseases of the chest at the City of London Hospital, Victoria Park, morning and afternoon clinics from Nov. 16th to 28th; venereal diseases at the London Lock Hospital, every afternoon and evening from Nov. 16th to Dec. 12th; diseases of infants at the Infants Hospital, every afternoon from Nov. 30th to Dec. 12th; proctology at St. Mark's Hospital all day from Nov. 23rd to 28th; and dermatology at the Blackfriars Skin Hospital, afternoons from Nov. 30th to Dec. 12th. Lectures and demonstrations intended primarily for candidates for the M.R.C.P. are given on various evenings chiefly at 11, Chandos-street, Cavendish-square. Copies of all syllabuses may be had from the secretary of the Fellowship, at 1, Wimpole-street, London, W.1.

REVIEWS AND NOTICES OF BOOKS

Occupation and Health.

An Encyclopædia of Hygiene, Pathology, and Social Welfare. Vol. I. Geneva: International Labour Office. 1930. Two vols. £3 3*s.*

THE English version of the first volume of this ambitious work has only appeared this autumn, although it is dated 1930. It is an encyclopædia of industrial hygiene, the articles of which are contributed by many experts of international fame. During the years in which it has been in preparation the articles have been issued from time to time in separate brochures; now they are arranged in alphabetical order and this first volume extends from A to H inclusive. The scope of the compilation includes the work, the worker, and the environment; sometimes the approach is by way of an industry, such as the chemical trade or the cotton industry. Sometimes by way of some industrial poison, such as carbon bisulphide or explosives; sometimes by way of subject, such as first-aid or food. The articles are for the most part well illustrated. A fair level of excellence is maintained throughout; although, as is inevitable with so many contributors, the standard varies, and certain of the articles bear signs of being compilations from the writings of others rather than the results of personal experience. The task of preparing the English translation of articles written in German and French has been entrusted to Sir T. M. Legge and Prof. E. L. Collis, and they have accomplished it so well that the reader seldom detects the stilted style which often mark translations of technical articles. No member of our profession can ignore the effect of occupation on health. Both consultant and practitioner are being constantly faced with the end-results of occupations, and, as Ramazzini wrote, "The duty of a doctor attending the common people is to inquire what trades they practise." When the trade has been ascertained, the hazards associated therewith must be known. Articles which deserve special mention are those by Prof. C. E. A. Winslow dealing with atmospheric conditions and ventilation; by the late Dr. W. T. Dearden on the cotton industry; and by Dr. Alice Hamilton dealing with the felt hat industry. The glass industry is delightfully described and illustrated by D. Glibert; while the article on the blood in relation to industrial poisons by Prof. P. Schmidt is both exhaustive and authoritative. This volume contains, in all, 1000 pages of closely written matter.

Diseases of Women.

Third edition. By THOMAS GEORGE STEVENS, M.D., F.R.C.S. Eng., M.R.C.P. Lond., Obstetric Surgeon, St. Mary's Hospital; Surgeon to Hospital for Women, Soho-square. London: University of London Press. 1931. Pp. 444. 20*s.*

IN his preface to the first edition of this book, which appeared in 1902, Mr. Stevens said that as a result of ten years' experience in teaching gynæcology to students he had learnt the lesson that gynæcology "must be presented on a pathological basis, in the same manner as medicine and surgery and that when presented in this manner the theoretical side at least of the diseases of women is no harder to acquire than that of the sister sciences." We believe this principle is sound and that the essential element in successful teaching is to impress on the student that the general principles of pathology are as applicable to gynæcology as they are to medicine or surgery, that clinical knowledge can only be built securely on a sound pathological basis, and that when this is acquired it is no longer necessary to memorise, parrot like, the signs and symptoms of the various gynæcological diseases. Since this principle pervades Mr. Stevens's book it has taken its place as one of the best small text-books on gynæcology for students.

In this new edition the text has been brought up to date, and in such matters as the physiology of menstruation, the ovarian internal secretion, and endometrioma of the pelvis the information provided is all that could be desired in a small text-book and certainly sufficient for the final qualifying examinations. The description of the pathology of chronic cervicitis is also admirable, but it is to be regretted that the old "tinkering" treatment by douches and the application of picric acid should still be recommended—somewhat hopelessly it is true—and that no mention should be made of the modern effective and easily applied treatment by cauterisation. Cases of chronic gonorrhœal cervicitis which have been treated weekly for years by almost every kind of local application and remain gonococcus-positive are sometimes cleared up by three or four applications of diathermy. It is doubtful whether syphilis is really a "cause of repeated abortion." It is unfortunate that Mr. Stevens should perpetuate the error that the most frequent variety of cancer of the cervix is the squamous epithelioma. By far the most common variety is columnar cancer; squamous epithelioma is really rare. This error seems to pervade all gynæcological text-books; indeed, it might be unsafe in a students' text-book to state the proportions correctly. We are glad to note that the author takes a sane view regarding supravaginal versus total hysterectomy for fibroids of the uterus, recommending the former as a routine proceeding and reserving total hysterectomy for special cases. More guidance might have been given as to the type of case in which myomectomy should be preferred to hysterectomy.

Mr. Stevens is to be congratulated on a book in which the student will find all he wants for his final examinations, and which will afterwards be a reliable guide in his practice.

Cutaneous X Ray and Radium Therapy.

By HENRY H. HAZEN, M.D., Professor of Dermatology, Georgetown University. London: Henry Kimpton. 1931. Pp. 166. 12*s.* 6*d.*

UNDER the subheading, Training of the Operator, the author lays down certain precepts for cutaneous X ray and radium therapy, to which every honest physician will subscribe. If they were consistently and conscientiously observed, the very considerable suffering and disfigurement resulting from radiodermatitis at the present day would be entirely eliminated. Every person who uses these methods should have a good knowledge of skin diseases, or work under the immediate supervision of a dermatologist, for a correct diagnosis is essential to success, and the pathology of a disease must be understood before the right dosage can be applied. A radiologist may be experienced in radiological technique, and have the most elaborate and modern apparatus at his command, but the very nature of his calling will tend to prejudice his choice of a remedy. "Many a case of acne will recover more quickly under suitable hygiene and diet than under X ray treatment," says Dr. Hazen. He himself is a dermatologist first and foremost, and is therefore qualified to speak with authority on the radiotherapy of skin diseases. He makes no extravagant claims either for the indications to treatment he follows or for the results he has secured. His language throughout is simple, and except for the somewhat mathematical section on the American method of dose estimation, will be readily comprehended by every practitioner with some knowledge of cutaneous disease. It is curious that he makes no mention of the Philips' X ray tube, which, while it is based on the same technical principles as the Coolidge, is armoured, and thereby ensures reasonable safety to the operator, and renders obsolete all the cumbersome paraphernalia of lead sheeting and rubber aprons, provided that the actual line of emanation is avoided. Superficial X ray therapy at least has been robbed of its danger by this simple invention.

Prof. Hazen's little book can be read from cover to cover without effort, and will amply repay its purchase by those who intend to treat skin diseases by X ray or radium therapy.

Études neurologiques.

Fourth Series. By GEORGES GUILLAIN and TH. ALAJOUANINE. Paris: Masson et Cie. 1931. Pp. 358. Fr.65.

THE fourth volume in the series of studies written by Prof. G. Guillain, this time in collaboration, contains as much of neurological interest as those which have preceded it. The method adopted, that of clinico-pathological correlation, seems admirably suited to the French genius, and its exposition in these pages leaves nothing to be desired. Prof. Guillain does not follow it slavishly, and from a physiological and experimental standpoint he seeks to amplify, in a number of his papers, the data derived from clinical observation. The subjects selected range widely over the neurological field, and the author has the art of making each readable and informative, so that the purpose of the communication emerges clearly in the reader's mind. We have invariably found Prof. Guillain's work concise, stimulating, and provocative, and we trust he will long continue to give the neurologist the fruits of his clinical experience.

Die Chirurgie des vegetativen Nervensystems.

By ERICH HESSE, Chief Assistant of Surgery, the Nervenkrankenhaus, Leningrad. Moscow: State Publication. Pp. 475.

THIS book consists largely of a comprehensive review of literature on the surgery of the sympathetic nervous system. The effects of division and stimulation of various parts of the sympathetic chain are fully described, and the author has collected the published cases of injuries, inflammations, and tumours of the sympathetic. Cervical sympathectomy, it appears, has been performed for over 30 different diseases, ranging from angina pectoris to glaucoma and otosclerosis. The claims of those who introduced the operation for each of these diseases are recounted with an impartiality which is perhaps excessive, especially as Dr. Hesse appears to have had considerable personal experience in performing sympathectomies. The sections on thoracic and lumbar sympathectomies are not quite so complete, and no reference is made to the recent studies of J. R. Learmonth on the innervation of the bladder, or to the work of G. I. Swetlow, J. C. White, and others on alcohol injection of the thoracic ganglia for relief of angina pectoris. A concluding chapter on the parasympathetic nervous system deals exhaustively with injuries, tumours, inflammatory lesions, and operative surgery of the vagus. The critical spirit desirable in a review of this sort is at times noticeably absent, but good indexes and bibliographies are supplied and the book will prove useful to those who have occasion to study the literature of the surgery of the sympathetic nervous system.

Clinical Interpretation of Blood Examinations.

By ROBERT A. KILDUFFE, M.D., F.A.S.C.P., Director of the Laboratories of the Atlantic City Hospital; City Bacteriologist, Atlantic City. London: Henry Kimpton. 1931. Pp. 629. 30s.

IN one respect this book is a portent; it takes cognisance of the fact that the clinical pathology of the blood is now concerned with other things as well as the formed elements of that fluid. It is probably unique among works of its kind in that it contains no picture of a blood-cell either red or white; the beautiful coloured plates usual in work on hæmatology showing the alleged appearances of the red and white cells in their polysyllabic variations are lacking. The author deserves congratulation on his strength of mind in having dared so far to depart from hallowed tradition. The physiology and pathology of the blood has now passed beyond the ideographic stage; given an elementary grasp of general principles it is possible to understand the subject without pictorial representation. This work constitutes one of the best compendiums of the present state of our knowledge in regard to the blood we have seen in any language. The author certainly shows a predilection in favour of American work and in some places (as for instance in the description of a number of procedures for the diagnosis of pregnancy from the blood which the Zondek-Aschheim test has made obsolete) he has used his space badly, but the net result is a most valuable work. Dr. Kilduffe has included the results of the monumental labours of Osgood, Haden, and other American workers on the normal blood picture; these may in course of time lead to a revision of the opinion still widely held that 5,000,000 represents the "normal" count for the red cells of all members of the human race.

The present state of knowledge about the blood groups is well reviewed and we rejoice to see emphasised straitly and without qualification, that no matter what the group of donor and recipient may be, nothing but direct matching can be regarded as conclusive test of compatibility where blood transfusion is contemplated. The various procedures based upon the old Arneth count are admirably reviewed, and attention is drawn to the simple method of Roberts, described some four years ago but too little known in this country. In speaking of the Wassermann reaction, Dr. Kilduffe makes pronouncements applicable not only to this but to all clinical laboratory procedures. One is that the clinician will do well to look upon the serologist in the light of a consultant and to select him not only for his expertness in manipulation, but also for his skill and ability in interpreting the clinico-pathological manifestations of disease. The second is that the clinician should have at least a working knowledge not only of the methods by which the test has been performed, but also by whom they have been applied.

THE BRITISH COLLEGE OF OBSTETRICIANS AND GYNÆCOLOGISTS.

THE British College of Obstetricians and Gynæcologists held its inaugural ceremonies in Grosvenor House, Park-lane, on Friday, Oct. 23rd. Before the dinner, in an adjoining hall, the President, Prof. W. Blair Bell, conferred Honorary Fellowships on Baron Riddell, of Walton Heath, Prof. Paul Bar, of Paris, Prof. Elis Esson-Möller, of Lund, and in absentia, on Prof. J. Whitridge Williams, of Baltimore. The distinguished foreigners he welcomed in a few words of their own tongues, and to Lord Riddell he made a warm acknowledgment for great generosity to the College.

The newly elected Fellows were then welcomed, and the Members were presented by Prof. Fletcher Shaw and admitted by the President, who recited to them the following Declaration: "I solemnly affirm that I will at all times maintain the well-being and dignity of the College, faithfully obeying in the spirit as well as in the letter the Articles and Regulations, and submitting myself to the lawful authority of the Council. Furthermore, I pledge myself in the practice of the art of Obstetrics and Gynæcology ever to have regard to the honour of the College, and to the welfare of the State."

The French Ambassador said that the British College had made a thoroughly happy choice in selecting Prof. Bar, who had studied in London 55 years ago, to represent French obstetrics, and hoped that the scientific bonds between the two countries forged by Pasteur and Lister. would be further strengthened by the ceremony which had afforded him so much pleasure to witness. The Swedish Minister complimented the President on his command of Swedish, and expressed his great satisfaction that his fellow-countryman, so highly esteemed in Sweden, had been honoured by the College.

A reception was held immediately following the ceremony, and preceding the first annual dinner. Prof. Blair Bell presided at the dinner and was supported by, among others, the French Ambassador, the American Ambassador, the Swedish Minister, the Dean of Canterbury, the Presidents of the Royal Society of Medicine, the Medical Society, and the Harveian Society, the Chairman of the Council of the British Medical Association, and the Master of the Apothecaries' Society.

After the loyal toasts Sir Thomas Horder proposed The College, promising that the duty had fallen to the hands of one who believed in the reasonableness of its institution and who had faith in its future. He said: "I have a sincere belief in the desirability of such a College as this, and though working in another department of medicine, I share in its aims and aspirations. I believe that it is in the interest of obstetrics and gynæcology that the College has been formed and find it strange on reflection that it was not formed long ago. The problems of your branch of medicine are particular and of great significance, both to the individual and to the State. In the view of many of us these problems can be dealt with much more effectively through the medium of a special body of men and women whose daily work brings them in contact with them than by a mixed body of physicians and surgeons, whose main interests may lie in other directions. I have heard it objected that if obstetrics are thus segregated from general medicine, then we ought to segregate also other special branches such as ophthalmology, laryngology, and dermatology, but this objection has never appealed to me, for I conceive the study of obstetrics to be more fundamental. Obstetrics have to do with the entry into the world of a new and individual life, with all the precariousness attaching to the first few days of existence. It has to do with all those accidents—physiological, chemical, anatomical, and infective—that may befall the expectant, the actual, and the recent mother. The more limited specialties are not in the least degree comparable and comparison is to construct a false analogy. The cleavage in this case is a natural, not an artificial one. And, in all our minds, have not medicine, surgery, and obstetrics constituted the tripod of our art and science? Is it only a dream that some day in this country we shall boast an Academy of Medicine, of which these are the three pillars? Or has the dream not come a little nearer by the very fact of this College coming into existence?"

The speaker then referred to the difficulty of some of the negotiations through which the College had got itself born, but offered no sympathy to the body "who being experts in difficult labour would not expect it. I suppose you all pulled together and so achieved your object." Looking at the development of the College, which had already materialised, he pointed out that the Royal College of Physicians of London had asked the Council of the new body to nominate a panel of names for the examinerships in obstetrics at the Conjoint Board, which seemed to imply that the College of Obstetricians and Gynæcologists would become responsible for the conduct of this part of the tests for the Conjoint Diploma; and he suggested, as a desirable extension of responsibilities, that the College should institute a higher diploma comparable to those of the other Royal Colleges. He congratulated the College on having already opened relations with the Ministry of Health by submission, in answer to specific request, of its views on maternal mortality, and upon the use of anæsthetics in confinements. In reference to this promotion of external interests Sir Thomas referred to the recent formation by the President of the Royal College of Physicians of London of a small committee for the express purpose of keeping that College in touch with external affairs. Such movements he considered to be most valuable as a preventive of splendid isolation. Sir Thomas concluded by a tribute to the steady toil on the one hand and the tactful forbearance on the other which the inception of the College had demanded of those who had been chiefly responsible for it. He would not, he said, give their names, but he would describe them as worthy successors to the giants who have gone before them, such as Matthews Duncan, Braxton Hicks, Galabin, Herman, and Champneys.

The President said that he would reply in English, despite a Scottish and Irish ancestry and a predilection for French and Swedish. He thanked Sir Thomas Horder for his kind words, and said that in hearing them, and knowing their sincerity, he felt that he and those associated with him were being transported into the future of their dreams. He then explained the significance of the coat of arms. The shield was divided into two halves, the one azure and the other sable, to typify day and night, during which times their labours were equally divided, while in the centre was the natal star of Bethlehem. The crest above portrayed the setting sun, symbolic of rest after labour, while the crescent moon represented the borrowed light by which so much of their work was accomplished. He proceeded to say that the Royal Colleges had stolen a short march on them in point of time. Henry VIII., oblivious of the debts he owed to gynæcology, had conferred a charter on the Royal College of Physicians of London, while the Royal College of Surgeons of England had only by a close shave emerged from the thraldom of barber-surgery in 1745, receiving its Charter in 1800; it had not obtained responsibility for the conduct of examinations with its sister College until 1876. Between 3000 and 4000 years ago, in Sumerian times, midwifery was a segregated and important subject, whereas the other branches of medicine hardly existed. In a few thousand years it would be impossible to say which of the Colleges was the most ancient, whereas in 100,000 years, if the human race still existed, the other Colleges might not be required. He hazarded the opinion that before 1945 the College, the child of Prof. Fletcher Shaw's imagination, would be intimately associated with the Royal Colleges to their mutual benefit, though to-day men were much more concerned in not dying than in being born. "As President," he said, "I take a particular delight in expressing the debt of gratitude the Fellows and Members owe to our honorary secretary, Prof. Fletcher Shaw. It was he who first conceived, and suggested to me seven years ago, that the time was ripe for the foundation of a College of Obstetricians and Gynæcologists, and I can truly say, for I have been in the position to judge, having worked with him ever since, that he has never spared himself in any way to ensure a normal delivery and healthy neonatal existence for our College. No tribute of mine can over-estimate the value of his services. Mr. Comyns Berkeley, our first treasurer, and Mr. Eardley Holland, who succeeded him, have likewise devoted their energies and financial abilities to the best interests of the College. There are very many others whom I should like to name if there were time, whose service on the Council and in other ways—even to the extent of occasionally subordinating their own views—have helped the College to reach its present important position." The aims of the College were to improve the status of obstetrics and gynæcology and the education of the practitioner of medicine in these subjects. He was convinced that the attainment of these aims would benefit the State, and could not be achieved apart from the British College of Obstetricians and Gynæcologists. In conclusion, the President expressed the hope that the goodwill and fellowship which inspired the scientists of all nations and which had been so conspicuously typified by the evening's ceremony, might permeate their countries and usher in an era of prosperity and peace.

Prof. R. W. Johnstone then proposed the toast of the Guests. After a tribute to the women who had contributed largely to the evening's enjoyment, he pointed out that the aim of this, the youngest College, was to live in healthy symbiosis with its elder sisters. He rejoiced to see present the Ambassadors of France and America, the Minister for Sweden, Lord Dawson of Penn, although not in his official capacity, Prof. Paul Bar, Prof. Essen-Möller, the Master of the Apothecaries Society, the President of the Harveian Society—a society which commemorated Harvey a distinguished obstetrician—Dr. Eden in his dual capacity—host as member of the Council of the College and guest as President of the Royal Society of Medicine, and guest, Vice-Chancellor Hetherington, titular head of Liverpool University and therefore in some measure responsible for their President. He felt that it would not be invidious if he welcomed Lord Riddell with particular warmth. A man of many parts, a newspaper proprietor with almost a judicial mind, who had served his country brilliantly in many capacities, he had by his advice, advocacy, and extreme generosity given invaluable help to the College. On this, the earliest opportunity, they had elected him to be the first Honorary Fellow and were delighted to honour him and have him in their midst.

Lord Riddell, declaring that he was astonished to find that he could still blush, said that his interest in obstetrics had two reasons—it was a branch of medicine that directly affected every member of the State, for no one could avoid being born, and secondly, that unlike diseases the more reading about which made him fear he had become infected, obstetrics was a subject he could contemplate without morbid fears. He found that the ignorance on the subject amongst the laity was appalling, and he was informed, and was willing to believe, that the good old British method of muddling through was inexpedient so far as midwifery was concerned. Lord Riddell concluded by promising to do anything that lay in his power to promote the interests of the College.

Vice-Chancellor Hetherington said that Liverpool was proud of the President and regretted that he had retired from the active staff of the University at such an early age. He was sure that Liverpool would welcome the formation of the College.

So ended a particularly pleasant evening and no person present could fail to appreciate that he had witnessed an historic event, nor fail to realise that the presence of the leaders in obstetrics and gynæcology from the Provinces, Scotland, and Ireland was a guarantee that the British College of Obstetricians and Gynæcologists, while it may have no traditions, will, *super ardua*, succeed in carrying out a tradition worthy of the Empire and of the fundamentally important subjects whose purpose it is to serve.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 17TH, 1931.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 41 (last week 34); scarlet fever, 1843; diphtheria, 950; enteric fever, 46; pneumonia, 661; puerperal fever, 44; puerperal pyrexia, 94; cerebro-spinal fever, 26; acute poliomyelitis, 14; acute polio-encephalitis, 3; encephalitis lethargica, 8; dysentery, 12; ophthalmia neonatorum, 81. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Oct. 20th–21st was as follows:—Small-pox, 69 under treatment, 3 under observation (last week 75 and 4 respectively); scarlet fever, 1628; diphtheria, 1477; enteric fever, 15; measles, 142; whooping-cough, 349; puerperal fever, 11 (plus 8 babies); encephalitis lethargica, 221; poliomyelitis, 5; "other diseases," 170. At St. Margaret's Hospital there were 13 babies (plus 5 mothers) with ophthalmia neonatorum.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox or enteric fever, 11 (2) from measles, 5 (3) from scarlet fever, 12 (3) from whooping-cough, 34 (5) from diphtheria, 58 (16) from diarrhœa and enteritis under two years, and 31 (5) from influenza. The figures in parentheses are those for London itself.

Stoke-on-Trent and Middlesbrough each reported 2 deaths from measles. Liverpool, Manchester, and Newcastle each 2 deaths from whooping-cough. Diphtheria claimed 3 victims each at Liverpool, Dewsbury, and Hull. Diarrhœa was credited with 5 deaths at Nottingham, 4 each at Birmingham and Liverpool, 3 each at West Ham, Manchester, and Salford.

The number of stillbirths notified during the week was 262 (corresponding to a rate of 41 per 1000 births), including 44 in London.

THE LANCET.

LONDON: SATURDAY, OCTOBER 31, 1931.

ALBUMINURIA IN PREGNANCY.

THE rapid increase and improvement of antenatal work throughout the country means that more and more women are having their urine regularly examined throughout pregnancy. There is, therefore, a growing need that practitioners should have a clear conception of the significance of albuminuria in pregnancy and of the treatment necessary to avoid complications which may come in its train. Mr. G. F. GIBBERD has lately given us a valuable exposition of these matters,[1] and it is appropriate to consider his opinions in conjunction with those expressed by Dr. G. W. THEOBALD at p. 948.

Dr. THEOBALD suggests that the albuminuria associated with pregnancy can be accounted for by mechanical means, among which he places first lordosis and the diminished thoracic capacity associated with the later months of pregnancy. He shows clearly that dogs pass small quantities of albumin when placed in a position of marked lordosis; on the other hand, such experiments hardly reproduce the normal anatomical condition of the abdomen late in pregnancy. His success in producing slight albuminuria in non-pregnant human beings by maintaining a modified Walcher position for 40 minutes will also be criticised as bearing little relation to the normal. Again the slow deep breathing which, he shows, may cause transient albuminuria is by no means usual in the later stages of gestation. There will be general agreement, however, with his observation that the incidence of experimental orthostatic albuminuria is affected by diet—that after a meal rich in protein albuminuria appears earlier and is of larger amount than after a meal poor in protein. Moreover his proof that venous congestion of the kidney causes albuminuria in dogs is supported by a certain amount of clinical evidence that venous congestion sometimes plays a part in causing the albuminuria of pregnancy. Thus a raised intra-abdominal pressure is more frequently seen in primiparæ than multiparæ, and so is albuminuria—both being more marked as full term approaches. But cases are common in which the pressure is raised yet there is no albuminuria and this indicates the operation of one or more additional factors, notably toxæmia. Further, the appearance of albuminuria in the early stages of pregnancy makes it certain that albuminuria must often be non-mechanical in origin. We are forced to conclude that in no case of albuminuria of pregnancy is it safe to presume that the cause is solely mechanical. Blood pressure estimations should undoubtedly form part of the routine daily investigation of every such case, but to suggest that albuminuria in the absence of a raised blood pressure is of no significance is to imply that treatment is unnecessary, and this may be disastrous.

The only known cause of the toxæmias of pregnancy, in Mr. GIBBERD's view, is pregnancy, and he does not discuss the possible predisposing factors: but his papers throw much light on the immediate and remote prognosis. He lays stress on the pre-eclamptic nature of the albuminuria and quotes the interim report of the Committee on Maternal Mortality as showing that in two-thirds of the fatal cases of eclampsia investigated the urine was not adequately tested before the fits started, and that in the majority of the remaining cases where albumin had been discovered reasonable treatment had not been immediately begun. In 8000 deliveries by the Guy's Hospital obstetric department in the last five years, he says, 300 cases of albuminuria of pregnancy were discovered and treated. There were only two cases of eclampsia—one of the rare fulminating type, and the other in a patient who refused treatment for her albuminuria. Dr. THEOBALD believes that 20 per cent. of eclampsia is of the fulminating type, a very high estimate. He has also reported two cases of eclampsia without albuminuria,[2] but these must be exceedingly rare. Mr. GIBBERD finds that 3 to 5 per cent. of all previously normal women develop albuminuria during pregnancy, and that more than half of these, in the absence of proper treatment, sustain permanent renal damage. Ten per cent. of them show patent chronic nephritis, while 50 per cent. have recurrent albuminuria in subsequent pregnancies. He infers in these the existence of an "occult nephritis," but unfortunately he does not explain clearly the character of the chronic nephritis usually found, nor estimate the consequent interference with health and limitation of life. It is well known that death from chronic nephritis may follow albuminuria of pregnancy after a period of years, but Mr. GIBBERD's estimate that this is the fate in 10 per cent. of all cases is unexpectedly high. It is to be hoped that in the near future he and other workers will be able to offer a more precise ultimate prognosis. What is the fate of his many cases of occult nephritis where there are no further pregnancies?

If the presence of chronic nephritis is proved in a pregnant woman Mr. GIBBERD rightly holds that the pregnancy should be ended, both because it increases renal destruction and because the child has little chance of survival. His proposed treatment is based upon his figures, and may be briefly described under the headings of rest, diet, and if necessary termination of pregnancy. There is general agreement on the outstanding importance of rest in the treatment of all renal disease, and if his figures showing permanent renal damage in a large proportion of cases of albuminuria of pregnancy are confirmed by other observers the prevalent treatment of this condition must be severely criticised and altered. Ambulatory treatment combined with a diminished diet and saline aperients must be replaced by absolute rest in bed until albumin can no longer be detected. Difficulties will arise where the woman has no available domestic help, but this drastic treatment must be achieved if its necessity is proved. The accepted view is in favour of a diet consisting of glucose and large quantities of fluid in the first few days of treatment, but the continuation of a protein-free diet possibly for many weeks is open to objection. Probably the greatest degree of metabolic and renal rest is to be got by providing enough protein for the normal anabolic processes of the body at rest; for otherwise we shall unduly increase endogenous protein katabolism. All will agree that protein in excess of need means more renal work, both directly in excreting the excess and indirectly by the specific dynamic action produced.

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[1] THE LANCET, Sept. 5th, p. 520, and Sept. 12th, p. 576.

[2] Jour. Obst. and Gyn. Brit. Emp., 1929, xxxvi., 803.

The bowels should be kept regular, but clinicians differ considerably about the value of purgation and diaphoresis. Mr. GIBBERD favours both in moderation. He induces labour in all severe cases that fail to react to strict medical treatment, as outlined above, after a trial of two or three days. He also insists that even slight cases which fail to clear up completely after a fortnight's treatment should have labour induced. His figures show a very definite increase in the incidence of both patent and occult nephritis where the albuminuria has been allowed to continue three weeks or more.

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BRITISH COLLEGE OF OBSTETRICIANS AND GYNÆCOLOGISTS.

THE British College of Obstetricians and Gynæcologists held its full dress ceremonials on Friday, Oct. 23rd, when Prof. BLAIR BELL, the President, conferred certain honorary Fellowships of an international character, admitted the newly elected Fellows and Members to their College, and then presided over the first annual dinner of the new corporation. The proceedings went with a smoothness and dignity which augurs well for the future.

It is widely known that the foundation of the College was attended with considerable difficulty. The idea of a separate medical corporation to take particular charge of obstetrics and gynæcology did not at first commend itself to many professional leaders, nor, which was very important to the pioneers of the movement, was it wholly acceptable to the Royal Colleges of Physicians and Surgeons. The successful promoters of the new College can be congratulated alike upon their diplomacy and their energy. Individual converts, they saw, would be obtained in sufficiency when the support of the Royal Colleges was obtained, and they concentrated upon this issue. They knew that before the aims and ideals of the new College could be recognised as sound, it would have to be shown that it would be able to do something which the existing Colleges could not do. To prove a negative is always hard, and a period of wrangling might well have ensued if the leaders of the Royal Colleges had not recognised the force of the arguments adduced by the innovators. Both insight and tact were displayed on either side over a considerable period, during which the services which a college of obstetrics and gynæcology might discharge for the good of the public were steadily made prominent. Thus it came to be recognised by prominent members of the Royal Colleges that they had not to protect their institutions from trespass, and these took, finally with readiness, the liberal view that public needs would be met by a body which would be of an auxiliary and not of a competing character. The principal argument for the foundation of the College of Obstetricians and Gynæcologists was, of course, the desire to combat maternal mortality, where the figures are an admitted reproach when the progress of medicine and surgery in every other branch is estimated. A College of the nature projected it was felt would provide fuller opportunities for the development of exact knowledge, would raise the standard of education on the subject, and give to the practitioner an added prestige. No one denies that in the institution of the College we have a certain separation of diseases peculiar to women from other branches of medicine and surgery, and that this does not accord with that unity in scientific medicine which is the accepted ideal. But the cleavage, such as it is, will not be of a nature to embarrass the public, and, with the development of the activities of the new College, it will be closed up, so as to represent only such a division of function as belongs to all orderly growth. It is urgently necessary that our standard of obstetrics should be raised; and while the Fellows and Members of the young corporation may regard this as their prime responsibility, they cannot fail to extend our wisdom along general gynæcological lines.

It is good to see that the Royal College of Physicians of London has already asked the College of Obstetricians and Gynæcologists for a panel of names for the examinership for the Conjoint Diploma; this is a practical step towards that fusion of interests which was held up as necessary by speakers at the first annual banquet of the College. For medicine to serve the public practically, it is particularly valuable that the medical profession should itself present a general uniformity of view.

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RACIAL HERD-IMMUNITY OF THE MAORI.

AN appendix to the latest annual report of the Director-General of Health for New Zealand contains some statistics on the differential immunity of pure and cross-bred Maoris. A group of some 2000 children, aged 5 to 15, which included full, three-quarter, half, and quarter bred Maoris, were submitted to four immunity skin tests—Schick, Dick, Pirquet, and Casoni (intradermal injection of hydatid cyst fluid). According to these tests, the susceptibility of the group to diphtheria, scarlet fever, and tuberculosis definitely declined with age in the same way as is usual with pure European stocks. No age gradient was however evident in the frequency of skin allergy to hydatid fluid. When the group was divided into the four racial sub-groups, except that the three-quarter European group was the most tolerant of tuberculin, there was no significant difference in the frequency of positive Pirquet tests (average 12 per cent.) or hydatid susceptibility (13 per cent.) between pure and cross-bred Maoris. But in the case of the Schick test, while 24 ± 1·4 per cent. of the half and quarter breeds had positive reactions, only 10 ± 0·5 per cent. of pure and three-quarter bred Maoris were Schick susceptible. For the Dick test the respective frequencies were very much less, but in the same ratio, being 4·4 ± 0·7 and 1·8 ± 0·2 per cent. respectively. The Schick test figures were controlled on a small sample of white children from the same district who were found to be 63 ± 5·0 per cent. susceptible. The small number of positive Dick reactions is consistent with the fact that scarlet fever is almost unknown among the Maoris.

In general, herd-immunity to parasitic disease is a function of the environment and genetic constitution of a group. Age acts by allowing time for acquired immunity to be stimulated, or for natural immunity to develop as a growth character. The frequency of the skin reactions to tuberculin and hydatid fluid did not vary to any marked degree in the four groups of differing "blood," so that it is fair to conclude that the age-distribution and environment were almost the same in each racial group. It therefore becomes almost certain that it was the dilution of Maori with white blood that led to the highly significant increase in the skin sensitiveness of the more European stock to diphtheria and scarlet fever toxin. This piece of work, which was carried out by Dr. TURBOTT, of Gisborne, is unique as being the only clear demonstration that racial differences are an important factor in determining the frequency of Schick and Dick reactions in a community. That this is so has always been suspected, but owing to the great difference in the habits and environment of white and coloured races, there could be no certainty that the greater herd-immunity to diphtheria and scarlet fever, which is generally exhibited by coloured races, was not simply an environmental phenomenon. That the higher Schick and Dick immunity of pure Maoris was largely secondary to an inborn racial difference is also borne out by the tendency to a reverse association of reaction with race shown by the Pirquet tests, where the group with the smallest admixture of Maori blood was least sensitive to tuberculin. Moreover, although Maoris are more subject to severe tuberculosis than Europeans, only 12 per cent. had positive Pirquet tests, which result was consistent for a community living in sparsely populated sheep-farming districts where difficulty in the dissemination of droplet infection was to be expected. These observations are in favour of the hypothesis that the herd-immunity for diphtheria and scarlet fever was higher in the pure Maoris than in the European cross-breeds, as the result of special racial, or genetic, characters, and not because the pure Maoris were subjected to more intense or frequent contact with the specific micro-organisms. This does not mean that circulatory diphtheria *antitoxin* can *arise de novo* as a growth phenomenon; an hypothesis which is favoured by P. HEINBECKER and E. I. M. IRVING-JONES,[1] and E. B. SCHMITH[2] to explain the Schick immunity of Eskimos living in districts where it was assumed (on very inadequate evidence) that diphtheria bacilli had always been absent. On the other hand, A. S. METCALFE[3] found in Thursday Island 96 ± 1·3 per cent. of the aborigines and 93 ± 1·2 per cent. of native-born Europeans were Schick positive. The latter observation from a remote island, in combination with European and American experience, makes it probable that diphtheria bacilli were, or had been, present among the Eskimos, and that coloured races, as well as white, acquire their circulatory antitoxin by latent immunisation—i.e., by sub-clinical infection with diphtheria bacilli. The coloured races, however, differ from white in having a higher degree of racial immunisability which enables them to respond more rapidly to, and perhaps to smaller doses of, toxin than Europeans.

Dr. TURBOTT's interesting and laborious investigation, involving over 8000 skin tests, is one of the best pieces of evidence yet published that there are racial genetic differences of practical importance in *immunisability*, but it leaves unanswered the controversial question: Is it possible for specific antitoxins to appear in the blood irrespective of any stimulus from the corresponding exotoxin?

THE TEACHING OF SCIENCE.

DELIVERING the Alexander Pedler lecture of the British Science Guild on Oct. 21st, at Newcastle-on-Tyne, Prof. Irvine Masson, D.Sc., reviewed education in pure science as now carried on at our universities and in schools. Has the pendulum overswung? he asked. Are we teaching too much science? Or teaching science too much? To those who are going to be lifelong scientists, we must and do give an intensive training; but every science is swelling now so quickly that it can no longer be confined within the three-year limit of the undergraduate course. Two more years are needed, and are actually expected of a young man before he is eligible for a first post as a practising scientist. This needs universal recognition. To *those who are not going to be scientists*, we are trying, in Prof. Masson's opinion, to teach too much and too specially. The figures for the whole country show a great preponderance of "honours" over "pass" students, and a great many of these honours specialists do not go on with further training in their science, but turn to school-teaching, besides other occupations. These carry into the schools the same exclusive specialisation, and a vicious circle is created. It is helped, if not caused, by the higher salaries paid under the Burnham scale to school teachers who are honours graduates. If this were altered, and the universities reformed their pass-degree courses, we should get much better-balanced teaching in schools; and the whole series of educational sieves through which our young people pass (or are forced) would work naturally. In the schools, especially the secondary schools, exaggerated science teaching goes on on a very large scale from absurdly youthful ages, while other subjects—e.g., German, are neglected. These things, Prof. Masson believes, are as bad for the future scientist as they are for all his brothers and sisters.

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[1] Jr. Immunol., 1928, xv., 395. [2] Klin. Woch., 1929, viii., 974. [3] Med. Jour. Australia, 1924, i., 111.

ANNOTATIONS

THE WORLD TO-DAY.

"FEW will deny that the world is in a state to provoke the laughter of the gods." The remark is made by Prof. William McDougall in a prefatory note to his expanded Ludwig Mond lecture.[1] The gods may well laugh at the world confusion that has followed the high hopes of the victors of the Great War, and the statesmen of our Western civilisation seem as powerless as the characters in a Greek tragedy to understand a threatening disaster in which their own actions and principles, however well intentioned, are undeniably playing the greatest and most important part. To the reader of this little book the strife of our general election, with its concentration upon the necessities of the moment, appears at best a local effort to temporise with world-wide economic difficulties the causes of which must be sought in a fundamental defect of our social machinery. McDougall believes this defect, whatever it may be, has arisen from the devotion of our energies to the material sciences and our almost complete neglect of the study of human and social factors. He points, for example, to the effect of mass production in America in increasing "technological unemployment"—the excess of firing over hiring—and asserts that every step of progress physical science may make in the near future can only add to our dangers and perplexities by increasing the top-heaviness and the lop-sidedness of our civilisation. In one group of American companies the output per man has increased by 74 per cent. since 1919; farmers, still the backbone of the country, were meanwhile finding their position increasingly difficult, and with the fall in wheat prices it has become desperate. The combination of increased production and increasing unemployment all over the world renders paradoxical our own necessity for economy and stimulation of output, and for this paradox economists have no convincing explanation. Indeed, for economists McDougall has little respect. He admits that their predictions are not always wrong; they make so many that the law of chance favours them sooner or later. But the less exacting test of power to explain after the event finds them lacking. Could there be, he asks, a greater diversity of opinions and acuter opposition of authorities than on the question of the grounds of the present world-wide economic slump, or any other economic phenomenon you please? The essential economic facts are human passions and interests, and text-books are full of inexorable laws whose only defect is that mankind will not obey them.

The remedy is pointed out by Dr. Abraham Flexner, who wrote, in his recent book on Universities, "Somewhere, away from the hurly-burly of practical responsibility and action, the social and political problems involved in these disorders must be exposed." Our frame of mind is to be recognised as the cause of the paradox of distress in the midst of plenty, and a psychological foundation must be laid in order to convert economics from a chaos to a science, though psychology may never be able to present simple conclusions in the shape of a formula. The hedonistic assertion about human motivation must be discarded, and instead we must try to answer the question, "What place has thought or reason in guiding man's social behaviour?" Our most powerful intellects should be diverted from the physical sciences into research into the biological, the human, and the social sciences. We need, too, a new scale of values in the public mind, a scale in which such prestige shall *attach to the social sciences as hitherto physical* science alone has enjoyed. With this accomplished, and premature applications to practical problems being avoided, McDougall thinks that substantial progress might be expected within some 40 years, but he doubts whether our civilisation can survive in the meantime.

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[1] World Chaos: the Responsibility of Science. London: Kegan Paul. 1931. Pp. 119. *3s. 6d.*

OPIUM IN THE FAR EAST.

BY the International Opium Convention signed at The Hague in 1912 the Contracting Powers undertook to "take measures for the gradual and effective suppression of the manufacture of, internal trade in, and use of prepared opium"—*that is*, of opium prepared for smoking—and engaged to "prohibit the import and export of prepared opium"; those Powers which were not yet ready to prohibit immediately the export of opium for smoking undertook to do so as soon as possible.

Although nearly all the Powers are now parties to this Convention, little or nothing has been done during the 18 years which have elapsed to give effect to these pledges. Indeed the Geneva Conference of 1925, by protocol, postponed the suppression of opium smoking to a period not more than 15 years from a date when a Commission of the League of Nations should decide that the export of raw opium from producing countries no longer constituted a serious obstacle to reduction of the consumption of opium in consuming countries. The matter further engaged the attention of the Council and the Assembly of the League in 1928 and 1929, when a Commission was appointed to visit the Far East and report on the measures taken to fulfil the treaty obligations of 1912 and 1925, and on the difficulties presented by the illicit traffic in opium. A Commission of three, of which Mr. Eric Ekstrand was chairman, proceeded to make elaborate investigations over an area from Japan to Java, and from Rangoon to the Philippine Islands. Two volumes, of 158 and 495 pages respectively, embodying the results of their inquiries, have now been published.[1] Vol. I. contains the report of the Commission; it epitomises the elaborate survey of the general situation in the Far East as regards opium smoking, with particulars in respect of each territory visited, and sets out the conclusions arrived at, along with suggestions made to the League of Nations and the Governments concerned. Vol. II comprises more detailed descriptions of the investigations in the ten territories visited, including Burma, Straits Settlements, Federated Malay States, British North Borneo, Siam, the Netherlands Indies, Indo-China, Hong-Kong, Macao, and the Philippine Islands.

The Commission attributes the failure of previous efforts to combat opium smoking to lack of concurrent and progressive action on the part of the Powers concerned. It invites scientific research as to the relative harmfulness of smoking and eating opium. It urges the League of Nations to secure international ontrol of poppy cultivation, without which it is npossible to arrest illicit traffic. It regards opium s an illegitimate commercial product, except for edical and scientific purposes, and recommends n international preventive service to stop the ontraband trade. A Government monopoly of pium is favoured, and, pending suppression of smoking, the registration and rationing of smokers is dvised; the establishment of Government divans r authorised smokers is suggested, while the cure f addicts is to receive attention. As regards opium evenue, which in some cases amounts to one-third f the total revenue, it is recommended that this be laced in a special account, against which should be harged the expenses connected with the campaign gainst illicit traffic, education, scientific research, e care and cure of addicts, and social and sanitary urposes. The Commission found it impossible to eep within the strict terms of their reference. Opium noking could not be dealt with apart from opium ating, nor without relation to the traffic in other arcotic drugs. They say: "The radical method of ealing with illicit traffic in opium is by controlling ectively the cultivation of the poppy, allowing ly such quantities to be produced under international control as are required for the world's edical and scientific needs." This accords with the iew held by those who have made an exhaustive udy of the question, and the contention was stoutly pheld by the United States delegation at the Geneva onferences in 1924–25. The essential dependence n loyal coöperation by all the Powers for success in curing this objective is emphasised. The nontification of The Hague and Geneva Conventions y certain producing countries, and the failure of her Powers, and indeed of some of our own colonies d dependencies in passing and enforcing legislation ke that of the Dangerous Drugs Acts, 1920–25, nstitute formidable obstacles to progress. The velations contained in the reports of the Far East ommission should stimulate the League of Nations more vigorous international activity.

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[1] League of Nations. Commission of Inquiry into the Control of Opium Smoking in the Far East. Vol. I.—Report to the Council, with comparative tables, maps, and illustrations. Geneva, 1930. 6s. Vol. II.—Detailed memoranda on each territory visited by the Commission. Geneva, 1931. 12s. Obtainable from Messrs. Allen and Unwin, at 38, Great Ormond-street, London, W.C.1.

RADIUM AT BURNLEY.

THE Victoria Hospital at Burnley has about 340 mg. f radium sulphate. It has also a very long waiting-st and an overdraft. In an effort to raise funds nough to provide beds for the waiting cases, the aff of the radium clinic have compiled a small ooklet describing in simple language the properties f radium, its application to malignant disease, and s use in the hospital.[1] The clinic has now been orking for about 20 months, and is the only one n Lancashire, outside Liverpool and Manchester, hat has been devised and organised on modern lines. he equipment includes electrical inspection devices, special camera and microphotographic apparatus, nd a biochemical laboratory, and in the near future here will also be a deep X ray therapy plant and a urgical diathermy apparatus. About 160 patients ave been treated, most of them with radium needles, ut some with plaques, and every effort is made to eep records on approved lines. Owing to the hortage of beds, the whole amount of radium available annot always be in use, and many patients who ught to be in bed have to come for daily treatment. The board therefore hope to be able to provide 14 beds for radium cases alone on the top floor of the new out-patients' building, as soon as enough money can be raised.

HYPERPARATHYROIDISM: GENERALISED OSTEITIS FIBROSA.

OF the applications to clinical medicine of the newer knowledge of calcium metabolism none is so dramatic as the recognition of the effects of hyperactivity of the parathyroid glands on the skeleton. The isolation by J. B. Collip of an active parathyroid extract which produces on injection a rise of calcium in the serum with increased excretion by the kidney, and the recognition by D. Hunter and J. C. Aub that injections of this extract cause a loss of calcium from the bones, were important steps in deciding that in cases of generalised osteitis fibrosa the high calcium content of the serum, the increased calcium excretion in the urine, and the diminished density of the X ray shadows of the bones point with certainty to a lesion of the parathyroid glands.

Satisfactory proof of hyperparathyroidism now exists in 32 cases of generalised osteitis fibrosa. In 21 of these a parathyroid tumour was removed by operation, in two cases two parathyroid tumours were removed, and in four cases no parathyroid tumour was found at operation. Pain and tenderness in the bones were common, and spontaneous fracture was recorded in 14 cases. Thirst and polyuria occurred in five cases, renal calculi in ten, and hæmaturia in one. Hypotonicity of muscles was recorded in seven. In only six was the parathyroid tumour palpable in the neck. The largest tumour removed measured 7·5 by 5·0 by 1·8 cm., and weighed 26·2 g., and yet it had not been palpable in the neck owing to its situation behind the trachea. Nausea and vomiting, sometimes with abdominal cramps, have been described. Wasting is common in advanced cases. The serum calcium figures varied between 12·6 and 23·6 mg. per 100 c.cm., the plasma phosphorus between 1·0 and 2·7 mg. The output of calcium in the urine varied from a slight increase to eight times the normal figure.

In the majority of cases pain in the bones was abolished immediately after operation, and the mechanism of this is difficult to conceive. Decrease in size of osteoclastic tumours of bone within a few weeks of operation on the neck has been twice recorded. In three cases polydipsia and polyuria were promptly abolished. In many cases the levels of the serum calcium and plasma phosphorus and the excretion of calcium in the urine were restored to normal. Sometimes there was temporary hypocalcæmia and even oliguria, with subnormal excretion of calcium in the urine. Latent tetany after operation was common, and manifest tetany often occurred, with marked variation in severity. It was fatal in one case only, where two parathyroid tumours were removed. Nevertheless removal of two parathyroid tumours is not necessarily fatal—in fact, A. J. Walton records[1] a case where he removed two parathyroid tumours without even producing post-operative tetany. I. Snapper has published a case where tremor and acute mania occurred three weeks after operation, at a time when the serum calcium had dropped to 6·6 mg. per 100 c.cm. The condition was completely relieved in three days by the use of Parathormone injections in conjunction with a preparation of calcium given intravenously. This latter procedure must undoubtedly be regarded as the essential treatment of severe post-operative tetany following removal of a parathyroid tumour. The post-operative treatment should include a high calcium diet and ultra-violet irradiation as routine procedures. Symptomatic improvement almost always occurs after removal of a tumour. Not only is pain in the bones abolished, but there is marked gain in weight, and many crippled patients have been able to dispense with sticks and crutches. Where no parathyroid tumour was discovered, removal of a normal parathyroid gland had no good effect in two cases, but removal of two normal parathyroid glands led to considerable symptomatic improvement in another. Increase in density of the radiographic shadows of bones undoubtedly occurs though it may not be obvious until two years after operation.

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[1] Radium and Cancer, being a short account of the Aims and Work of the Radium Clinic at the Victoria Hospital, Burnley. With a foreword by The Rt. Hon. Lord Shuttleworth. Compiled by John H. Watson, F.R.C.S., Director, and H. Lawrie, B.Sc., Physicist to the Clinic. Pp. 40. Paper, 1s.; cloth, 1s. 6d.

[1] Brit. Jour. Surg., October, 1931.

Prof. H. M. Turnbull has shown[1] that the changes in the skeleton are lacunar resorption, apposition, fibrosis of the marrow, and the formation of osteoclastomata and cysts. He brings forward conclusive evidence that the enlargement of the parathyroid glands is due to functional hyperactivity and not to autonomous neoplasm. If the changes in the bones are the result of excessive secretion of the parathyroid glands, the position is similar to that in Graves's disease, in which the cause of the abnormal activity of the thyroid gland is unknown. H. L. Jaffe, A. Bodansky, and J. E. Blair claim to have caused typical generalised osteitis fibrosa with cysts in young guinea-pigs and dogs by the prolonged administration of parathormone. They thus appear to have proved conclusively the correctness of the interpretation of the changes in the skeleton in man that has been suggested by Prof. Turnbull from examination of the histological processes.

Dr. Donald Hunter and Prof. Turnbull record[1] full details of the investigation of three cases of hyperparathyroidism operated upon by Mr. A. J. Walton. The reports of these cases illustrate how medicine, dietetics, experimental pathology, histology, physiology, and chemistry all have been called upon to direct the knife of the surgeon towards a tumour which he could not feel. Such happy coöperation is characteristic of much of the team-work which is going on amongst the research workers in our teaching hospitals to-day.

GASTRO-INTESTINAL SYMPTOMS IN THYROID DYSFUNCTION.

Of late years attention has been paid to what is called "masked hyperthyroidism." The usual picture is unexplained persistent tachycardia or auricular fibrillation, progressing ultimately to cardiac failure, where other signs of hyperthyroidism are absent or slight. J. R. Verbrycke[1] now describes 34 cases whose predominant symptoms were gastro-intestinal, such as vague general abdominal pain nausea, and vomiting. Many of the patients also complained of nervousness, palpitation, and weakness. Tachycardia was the rule, and all but two of the cases exhibited tremor at some time or other. Loss of weight, though rarely mentioned, was found in the majority, while in all the basal metabolic rate was raised. No case in the series failed to respond to iodine medication, and a gain in weight of 4 lb. in a week was not unusual, which Verbrycke regards as strong confirmation of the correctness of the diagnosis. T. R. Brown[2] points out that under- as well as over-activity of the thyroid gland may manifest itself in gastro-intestinal symptoms. He has found that a number of people with chronic constipation have markedly low basal metabolic rates, and are easily fatigued and mentally dull. One woman, whose constipation was so severe that a colectomy was under consideration, improved at once on treatment with thyroid extract. Most of such patients are middle-aged obese women. Brown suggests that these cases are true examples of hypothyroidism in which the constipation dominates the clinical picture to the exclusion of the other features, and he says that the diagnosis of masked hypothyroidism should be thought of wherever there is intractable constipation in women in the fourth and fifth decades.

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[1] Jour. Amer. Med. Assoc., Aug. 22nd, p. 513.

[2] Ibid., p. 511.

TRANSMISSION OF DISEASE.

In his presidential address to the Section of Comparative Medicine of the Royal Society of Medicine on Oct. 28th Dr. J. A. Arkwright showed how close has always been the link between the study of human and animal diseases, especially on the side of pathology. Our more intimate knowledge of infective disease is largely founded on observation and experiment in connection with diseases of animals. In illustration he took such recent additions to our knowledge of the spread of infection from wild animals to man and domestic animals as psittacosis, rabies from biting bats, typhus fever from rats, and the infections acquired by man from drinking raw cows' milk. The essential factor of human lice in the spread of epidemic typhus has been recognised for 20 years, but the means of transmission and the source of sporadic typhus-like disease all over the world has only been on a hypothetical basis and supported by circumstantial evidence. The association of rats or mice with cases of typhus in man has sometimes been very striking. Contrary to most previous experimental evidence it has now been conclusively shown that wild rats may be infected with typhus, and that the disease may be communicated from rat to rat, or rat to guinea-pig, and presumably from rat to man by rat-fleas. Wild rodents, as is well known, act as a reservoir of Rocky Mountain spotted fever and other human diseases. Spencer pointed out that one species of tick can transmit four diseases to man. Some wild mammals are known to be susceptible to foot-and-mouth disease and wild rats have been caught harbouring the virus, but there is no evidence how long it is retained in a rat population, though it may be transmitted experimentally by natural means from rat to rat. Streptococcal infection due to drinking milk may be taken as an instance of disease directly transmitted from animals to man without insect vectors. The cows providing the infective milk have been shown to be suffering from a definite mastitis distinct from the ordinary garget and their milk to be heavily infected at the start. These cases of mastitis, due to strains of streptococci like those infective for man are more common than was supposed till recently. The resulting tonsillitis in man is a serious disease. Besides the severe and even fatal cases of septicæmia due to drinking raw infected milk, the tonsillitis once started is infectious from man to man. There is good reason to believe that similar sore-throats due to *S. hæmolyticus* or *pyogenes* are the exciting cause of attacks of rheumatic fever and the accompanying heart disease. Puerperal fever too is probably in some cases attributable to infection from attendants whose throats are infected with streptococci of this kind. Much recent work of this kind, said Dr. Arkwright, was emphasising the intimate connexion between disease in man and animals.

COMPILATION OF HUMAN PEDIGREES.

Now that human genetics is entering the sphere preventive medicine, it is likely that the practitioner ill be increasingly consulted on questions of genetic rognosis. For this reason, if for no other, it is ghly desirable to have some uniformity in the cording of human pedigrees. The Eugenics Society as recently produced a schedule[1] designed for the se of medical men who are consulted upon such roblems. When a patient asks a doctor for guidance bout the advisability of marrying into a particular rain, or about the risks of transmitting a familial sease or defect to children, the doctor's first wish ill be to scrutinise as full a pedigree as can be epared of the two parties contemplating marriage parenthood. The compilation of such a pedigree always a laborious and time-consuming process hich the patient should himself undertake provided at he has the necessary intelligence. The Society's hedule is designed for such as these. It contains ll instructions about the particular symbolism and ethod of recording kinship which should be employed nd a blank chart on ruled paper on which the pedi-ee should be plotted. Six blank pages are provided r the record of comments, either upon affected dividuals shown in the pedigree, or upon the edigree as a whole, or upon any of its component rains. A pedigree illustrating the inheritance of nile cataract is given as a specimen. Though this hedule will be of little value in the case of defectives low-grade families, the members of which will ot be able to understand the instructions, it may well ove useful to practitioners, who are consulted on netic questions, in those categories of disease hich are generally recognised as hereditary. The hedule is the only thing of the kind which exists this country. Those interested in the study of uman heredity who, for the benefit of their children, ish to prepare a permanent record of their own cestry, can obtain a more comprehensive schedule.

CONTACT GLASSES.

IN the current number of the *British Journal of phthalmology* Mr. A. Rugg-Gunn returns to a nsideration of the contact glasses, which excited vely interest in the summer at the Oxford Ophthalological Congress. While no claim of general plicability is made for the new device, it is evidently seful for exceptional cases. Since a contact glass, rather the fluid meniscus that it encloses, neutralises l corneal astigmatism, their most obvious use is cases of conical cornea and irregular astigmatism ue to past corneal disease, cases in which improveent by ordinary glasses is often very trifling. For smetic reasons they may have a place on the stage. nd by permitting a full range of movement of the yes they should be useful in certain forms of sport ich as tennis. Mr. Rugg-Gunn claims, too, that hey are of definite advantage in cases of anisoetropia by securing uniformity of size in the retinal nages—an end which is sometimes so difficult to ttain by ordinary methods that the attempt to btain binocular vision may have to be given up as mpossible. Even with monocular vision, and still nore with binocular, a contact glass is superior to spectacle lens in giving a better appreciation of erspective. These points are made good in the rticle by elaborate optical formulæ and charts erived from the publications of Dr. H. Hartinger. On the other hand, it must not be supposed that the prescription of contact glasses is a simple matter. In spite of the technical excellence now obtained in their manufacture, the surgeon has to give much time, care, and thought to obtain an exact fit of the scleral brim. The fitting is, in Mr. Rugg-Gunn's words, not so much an optical as an orthopædic problem. The length of time during which such a glass can be worn without discomfort varies. Some persons cannot tolerate them at all. Others find about three hours the limit. Others, again, wear them all day, and only remove them at night. Their cost is necessarily considerable.

HEALTH OF THE ROYAL AIR FORCE.

THE report on the health of the Royal Air Force for the year 1930[1] shows a marked decrease of sickness compared with the previous year. The decrease amounts to 53 per 1000 of strength for cases admitted to hospital or station sick quarters, and to 116 per 1000 for all cases of medical non-effectiveness. The rate of invaliding home from abroad is the lowest on record—viz., 12·8 per 1000, and the final invaliding-rate is considerably lower than in previous years. The death-rate, on the other hand, is a little higher—viz., 4·2 per 1000, whereas it was 3·4 per 1000 in 1929, and the incidence of venereal disease has risen from 15 to 16·1 per 1000. The report gives a number of tables analysing the various conditions which accounted for sickness in the force. Excluding tuberculosis, disease of the digestive system is responsible for the greatest percentage of deaths, and is followed by pneumonia; while invaliding is chiefly due to diseases of the nervous system, with tuberculosis coming second. Flying units show the lowest amount of disease and the highest death incidence, as would be expected; and aircraft apprentices show the highest disability incidence, but they have had a very much lower incidence of upper air-passage infection and influenza in the last 12 months. The principal causes of medical non-effectiveness in all groups were, in order: injuries, gonorrhœa, tonsillitis, appendicitis, malaria, and upper air-passage infections. An important part of the work of the R.A.F. medical service is the examination of candidates for commissions, who have to reach a very high standard of physical efficiency if they are to be accepted for the flying arm. During the year under review, 685 candidates were examined, and 432 (or 63 per cent.) were accepted. Defective vision continues to be the most frequent cause of objection, followed by failure to pass the physical efficiency test. The electrocardiograph and orthodiagraph have continued to be valuable accessories in the assessment of cardiovascular efficiency, and a series of observations on the effects of oxygen in the performance of mental and physical tasks has been made in the low-pressure chamber. The results of these observations will be published in due course and should prove of great interest. Of the 2793 candidates for enlistment, 40 per cent. were accepted as fit; the commonest causes of rejection were loss or decay of teeth, poor physique, deformities of the feet, diseases of the heart, and defects of vision, in that order. A dental branch formed in July, 1930, at present consists of 27 officers and 40 other ranks. There has been a marked improvement in oral hygiene throughout the service and a greater inclination to apply voluntarily for examination. A dental radiological department has recently been established at Uxbridge. The average injections of serum. The dose he employed was 10 c.cm. intravenously, repeated in some cases at intervals of 24 or even 12 hours. The response to the serum was quite dramatic, the temperature falling and the symptoms abating within a few hours of giving the serum. Grüneberg likewise reported the treatment of two cases with serum, both of which recovered. As in the case of poliomyelitis, recent work at the Lister Institute has shown that it is possible to prepare an antivaccinal serum in the horse, which will render recourse to convalescent serum unnecessary.[2]

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[1] How to prepare a family pedigree. Issued by the Eugenics ociety, 20, Grosvenor-gardens, London, S.W.1. 6d.

[1] H.M. Stationery Office. Pp. 59. 1s. 4d.

Other conditions.—Encephalomyelitis, very similar to that appearing after vaccination, may occur as a complication of infectious diseases such as measles, small-pox, chicken-pox, and zoster, and the success which has attended the use of convalescent serum in post-vaccinal encephalitis makes the use of the appropriate convalescent serum in these other conditions well worth a trial. Mumps, too, is a filtrable virus disease which produces a solid and lasting immunity and its long incubation period gives ample opportunity for the prophylactic administration of convalescent serum. I put these suggestions before you for your consideration. They seem worth a trial and indicate the way in which the use of convalescent serum might be extended.

RECENT ADVANCES IN THE TREATMENT OF DIABETES.

(DR. H. P. HIMSWORTH.)

FOR the last two years that method of treatment in which the patient receives a comparatively high proportion of carbohydrate and little fat has been tried at University College Hospital. The method has been found very successful with the ordinary diabetic patient. Ketosis is much better controlled, there is less tendency to coma and to infection, and the general health is better. Furthermore, the diet is cheaper, less obvious to others, more palatable, and therefore more likely to be adhered to. The disadvantage is that when put on to the diet the patient, if not carefully watched, may drift during the first week when his urine is just becoming sugar-free into acute hypoglycæmia.

Diabetic coma is the result of poisoning by acetone bodies, and the treatment consists of their removal. In a normal person an increase of carbohydrate in the diet will remove acetone bodies, and similarly in diabetic coma sugar will enable them to be burnt off; but the diabetic will need insulin to enable him to utilise the sugar. Both sugar and insulin are necessary to the body for the removal of acetone bodies in normal or diabetic individuals. Indeed, the customary thought of treating diabetic coma by insulin, covered with sugar as a safeguard against hypoglycæmia, should be reversed. Sugar is what must be given, and enough insulin provided to enable the sugar in association with insulin to remove the otherwise fatal ketosis.

In the treatment of diabetic coma sugar may be given by the rectum, by the mouth, or by intravenous injection. Rectal administration is unsatisfactory because the sugar is absorbed only slightly and irregularly. Oral administration, often the only way available, is unsatisfactory because in many of these cases, especially where there has been vomiting, the stomach is dilated and the pylorus in spasm. Absorption of the sugar does not then occur, since it normally takes place in the duodenum and not from the stomach. Insulin, if given, is consequently liable to send the patient into hypoglycæmic coma.

For intravenous injection 10 per cent. glucose in saline is used; this is prepared by adding 1 drachm (4 g.) of salt and 60 g. of glucose to a pint of water, and sterilising by boiling. The following technique of injection has been adopted in hospital.

A Wassermann needle No. 19 is used because the fine bore only allows the fluid to run slowly. In a patient with collapsed veins the difficulty of introducing the needle may be obviated by the method suggested by Sir Thomas Lewis. A sphygmomanometer cuff is put on the arm well above the ante-cubital fossa, the pressure is raised to 200 mm. for two minutes in order to stop all arterial blood flow, and then dropped to 80 mm., a pressure which congests the veins but allows the full development of reactive hyperæmia after the arterial obstruction. If this procedure is not sufficient the vein may be rubbed or flicked or the arm may be immersed in warm water. It is important that as the flow is slow the temperature of the injected fluid should be 106° F.; if too high the patient sweats and may collapse; if too low he may have a rigor. When the needle has been introduced, the pressure in the sphygmomanometer is released and the rubber tubing from the feed funnel is connected to the needle, the arm is immobilised by a roller towel and sandbags, and the tubing is strapped to the forearm.

Subcutaneous injection of insulin may be used if the circulation is good, but otherwise its addition to the fluid for intravenous injection is essential. During coma 1 unit of insulin accounts for approximately 1 g. of glucose; 500 c.cm. of 10 per cent. glucose saline are therefore run in slowly and 50 units of insulin given by the route indicated. This is continued until the patient comes out of coma. The advantage of this method is that the patient while still unconscious cannot swing over from diabetic to hypoglycæmic coma because the insulin is continuously covered by sugar. When the patient is definitely out of coma 50 g. of glucose by the mouth and 25 units of insulin subcutaneously are given every three hours, the proportion of sugar being raised because insulin is more efficient out of coma. The urine is now tested each time before giving sugar, and when the acetone bodies disappear the patient is put on to a diet. Some patients are so dehydrated that even when out of coma they benefit from intravenous saline.

Where circumstances will not permit continuous infusion, intravenous injection of the above amounts of glucose and of insulin should be given every tr hours. But these abrupt massive injections do not produce such a smooth, sustained, and sure effect as can be obtained by the continuous slow method.

If intravenous injection is impossible, *in spite of* considerable danger, glucose should be given by th stomach-tube. If this is done, the ratio of glucose to subcutaneous insulin must be raised to at least 2 g. to 1 unit because the absorption of the glucose may be slow and incomplete on account of dilatation of the stomach. There is no harm in giving excess of sugar; there is serious danger in giving *too little* in the presence of insulin.

The commonest cases of diabetic intoxication are those in which the patient is drowsy but amenable to treatment. All that it is necessary to do in these cases is to give, orally, 50 g. of glucose and, subcutaneously, 25 units of insulin every three hour ntil the urine is acetone-free. As pure glucose lutions are very nauseating, it is often convenient use Kia-ora lemon or orange squash, either of which ntains 50 g. of sugar in 4½ oz., or Schweppe's tonic ater, which contains 10 per cent. glucose.

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[2] As announced by the Ministry of Health this serum is available for use in cases of P.V.E., and can be had on application to the Lister Institute, Chelsea Bridge-road, London, S.W.

The diagnosis between diabetic and hypoglycæmic oma is readily made by testing the urine for acetone odies, using the ferric chloride reaction. If the ndition is so critical that time should not be lost waiting to collect a sample of urine and thus arrive at the diagnosis, the best plan is to give at ice a large dose of glucose. This can do no harm diabetic coma and it is the right treatment for the ypoglycæmic state.

The successful treatment of diabetic coma is based the removal of acetone bodies by administering oundance of glucose together with as much insulin may be needed. It is a reasonable hypothesis at a similar line of treatment, keeping the carbohydrates high and the ketone-producing fats low ould be successful for avoiding the onset of coma d thus be the right basis for the regular diet of any abetic patient. It was this line of thought which d to the trial of high carbohydrate diets at University ollege Hospital.

A new patient, or one who has just come out of oma, should be put immediately on to a diet of 00 calories (carbohydrate 120 g., protein 80 g., t 75 g.). If the urine is sugar-free at the end of week the diet may be raised to 1600 calories, and milarly after another week to 2000 calories (carbohydrate 180 g., protein 80 g., fat 100 g.). No elaborate lculations of the calorie requirements of the patient height, weight, &c., are needed. The patient is timately given as full a diet as he feels inclined to t, and while this may be sometimes less than 00 calories it does not often exceed that amount. hile the diet is being balanced the patient should taught to test his urine for sugar, and should xamine daily the specimen passed two hours after eakfast. Every third day six specimens in all, ken half an hour before and two hours after the ree main meals, should be tested. Blood-sugar timations are unnecessary.

Glycosuria in more than one of the six specimens the end of the first week shows that insulin will e necessary, and it should therefore be started at nce. The dosage should begin with 5 units twice day, and be raised by 5 units first in the morning nd then in the evening until only the after breakfast pecimen contains sugar. While the patient is on sulin twice a day, the carbohydrates of his dietary ust be chiefly given in the two meals, morning and vening, which follow the insulin. If it is found that t least a total dosage of 60 units will be required in he day, then the insulin should be given three times aily, the first dose being larger than the other two y 5 or 10 units, and the dietary being so rearranged hat the carbohydrates are now equally distributed etween the three main meals. As the balancing roceeds it will ultimately be found that the patient asses sugar only in the specimen two hours after reakfast. It is then rarely necessary to increase the nsulin because the intermittent glycosuria will vanish if the patient is encouraged to take exercise and, if necessary, minor adjustments of his diet can be made.

In the week when the urine is first sugar-free the patient may swing into violent hypoglycæmia and this danger must be foreseen As soon, therefore, as the urine becomes sugar-free throughout the 24 hours the insulin should be reduced by 5 units from each dose, or even further, until glycosuria just reappears. The patient should also carry sugar for use in emergency. After this second balancing the dangers of acute hypoglycæmia are almost negligible and the urine may be allowed to remain sugar-free. It seems that more insulin is required to render the patient sugar-free than to maintain him so.

Many patients who had been balanced previously on a diet low in carbohydrate and high in fat have been found to balance again on the high carbohydrate diet with even less insulin than before. At present we are unable to explain why the insulin requirement does not rise with the considerable increase of carbohydrate in the diet.

PINK DISEASE.

(DR. ROBERT HUTCHISON.)

PINK disease is becoming more important—either because it was previously overlooked or because it is growing commoner. Certainly it is more often seen than recognised, and I cannot help agreeing with Still that we have been seeing it for a long time without giving it a name.

Some people, chiefly in America, call it acrodynia, signifying "painful extremities," but this term is used by the French to mean something different. Others again call it erythrœdema, but this is misleading because there is in fact no œdema. The disease is also known by the names of Swift and Feer; but such eponyms are best avoided, and it is probably best to keep to the non-committal name of "pink disease" which Clubbe first employed.

Clinical Characteristics.—Like many other conditions it affects children of a particular age. We have to remember that a year in childhood corresponds to as much as a decade in adults, and the disease which we are considering is one which is found chiefly in "toddlers." It is commoner in boys than in girls, it usually comes on in winter; and it has an odd way of breaking out in districts. There have been for instance "islands" of the disease near Birmingham and Newcastle-on-Tyne, whereas in the London area cases seem to be sporadic. The onset may be sudden, after an infection such as gastro-enteritis, but more often it is insidious, the first sign being commonly a change in the disposition of the child. Among the symptoms we may distinguish five groups: (1) Disturbances of well-being are a constant and striking and conspicuous feature. It has been said that in no other disease is the expression of the child so unchildlike. It will often frown or burrow into the pillow when one approaches, and it may show disturbance or reversal of the sleep rhythm such as is seen in encephalitis lethargica. (2) Next we have disorders of digestion. Anorexia and thirst are common, while a curious complication, often found in the Australian cases, is prolapse of the rectum—probably due to muscular hypotonia. (3) The circulatory changes are very important. We may see tachycardia and high blood pressure—reaching perhaps 140 systolic in a little child—and the degree of these signs is an index of the activity of the disease. (4) In the skin we first notice as a rule excess of sweating; it is said by some that sweating is not so pronounced in any other disease of childhood. In consequence come erythematous rashes. The hands and feet are swollen (not really œdematous) and podgy; they peel, so as to look like washerwomen's hands, and the epidermis may have a worm-eaten look. Along with these changes there is hyperæsthesia of the extremities; the children seem to itch or feel uncomfortable and are always rubbing themselves. (5) I have already mentioned the muscular weakness which may cause rectal prolapse. Sometimes the first indication that anything is wrong is that the child goes off his feet. The deep reflexes tend to disappear and indeed their absence is fairly constant when the condition is fully developed.

Course and Duration.—Usually, as I have said, the illness begins insidiously, and it takes about three months to reach its maximum. Thereafter it may last another two or three months without much improvement, after which recovery ordinarily begins. The mortality is estimated at 5 to 10 per cent. and death is as a rule due to some intercurrent infection such as pneumonia. But sometimes, we must remember, the children just die suddenly, although their illness seems to be running an ordinary course. It is therefore wise to be guarded in prognosis; but whether it is really desirable to disturb the parents by mentioning the possibility of sudden death I am by no means sure.

Nature of the Disease.—Every investigator agrees that pink disease is an affection of the vegetative nervous system—the vagus and sympathetic. Whether it is functional or organic we do not yet know. One lesion which has been found in many cases, though not in all, is changes in the peripheral nerves (hence the dreadful name of erythrœdema polyneuritis); but the true nature, the inwardness, of the disorder is not yet discovered. As in all diseases of obscure origin, two suggestions have been put forward. The first, of course, is that it is an infection; but it does not seem to me in the least like an infection. The second is that it is a deficiency disease, and I agree that it shows an extraordinary parallelism with pellagra. But it has not yet been proved that pellagra is itself due to dietary deficiency, and when I have inquired into the diet of children with pink disease I have not found it to be different from that of other children. For the present we must admit that the cause is entirely unknown.

Diagnosis in well-marked cases is easy. The difficulty arises in those cases seen early before changes in the extremities are pronounced. I would here lay stress on the mental and nervous symptoms. If in doubt one should pay attention to the cardiovascular system and if one finds tachycardia and high blood pressure, then the diagnosis is confirmed.

Treatment.—There is no specific treatment. The nursing and management of the child are very important, especially as nourishment depends on them, and if the case can be nursed in the open air that is all to the good, since it may prevent intercurrent infection. Feer says that he has had his best results from using atropine sulphate in doses of 5 to 10 drops of 1 in 1000 solution four times a day. Swift puts his faith in artificial sunlight; nine exposures at intervals of three days will cure most cases, he states. I cannot say that I have found it so, but certainly the treatment does no harm and may satisfy the parents that something is being done. Following an even later fashion, many cases are treated with liver, but my single experience of this remedy was not encouraging. For myself I rely chiefly, as I have said, on good nursing and management. If one wants to try anything else there is an *a priori* case in favour of atropine.

In order to relieve troublesome itching the following powder may be employed: camphor and boric acid each 10 parts; zinc oxide and talc each 40 parts.

ECZEMA OF THE LEG.

(DR. W. J. O'DONOVAN.)

ECZEMA of the leg is a common diagnosis among practitioners, and is a source of tremendous prof still to the vendors of proprietary medicines. Eczema is a term still too commonly applied to many wet or scaling inflammations of the skin, of the cause or nature of which the observer is ignorant. Norman Walker has pointed out that eczema is literally translated by the word "eruption" and it is clearly open to anyone to call any rash an eruption. The doom of this word is probably written. It has out-worn its usefulness, it is popular in the street and with the advertiser but it lacks precision and usefulness.

The eruption on the legs of which I am speaking appears, when well developed, as a bilateral scaling moist redness of both legs extending up above the calf and down to the level of the top of the boot. It is intensely irritating, lasting from three months to forty years, and is signally free from the common complications of bacterial infection. The start of this formidable eruption is generally simple and well recorded. It has begun as a small pimple which was rubbed, a spot of irritation which was treated patent ointments or commonly it followed a defini injury, not necessarily severe. The patient's may be "That at 4.30 P.M., on the afternoon Nov. 7, x years ago, a bale of soft goods, 7 cwt., fell from a height of 9 ft. and grazed his the bruise never healed, and he has had a bad ever since." The imperturbable certainty with this causa causans is recited is like the evidence an old constable in the witness box; patient af patient will repeat it if encouraged to speak.

The bacterial flora that can be cultivated fro these legs has often been described, but no speci vaccine therapy has resulted. Allied investigatio upon the tonsils, teeth, and faces have not helped i classifying the nature of the process under consider tion. To understand the ætiology, a review of a series of cases will show the following striking fact When one leg is in a state of recognisable stocking erythema, the other leg may show only linear, blo scabbed, scratch marks and no other reaction. It i reasonable to infer, then, that the itching is to or subjective and that the visible dermatitis is a secondary effect. The patients are often extreme garrulous, contemptous of skilled professional advi much addicted to expensive quackery and show th suggestibility of hysteria in the form of Charcot' stigmata. Two human types predominate. T thin, worried, bolt-eyed, tremulous, quick-speaki patient whose facies was recorded by my assistant Dr. L. Hartston, in the *British Journal of Dermatolo* (1929, xli., p. 105); the other is of the fat type wh sit heavily and complain with placid features of yea of irritation and anguished, sleepless nights. T element of drama is frequently present. I have see these patients produce an unloaded revolver t emphasize their need of treatment and threate suicide, but they never do it. The condition is ofte allied with other admittedly nervous affections o the skin, the association with flexural prurigo a lichen simplex chronicus is marked. Occasionally th patients have also pruritus ani, vel vulvæ. A pill of lichenised skin on the back of the neck was comm in neurotic females with leg eczema as shown i some of the illustrations to-day. One of our patien has stocking erythema of one leg and definite derm titis artefacta in the form of linear plough mar pon the other leg. In none of these cases is there a oincident, or development of lymphangitis, adeno-athy or scarring. I have not seen septicæmia, ver, or thrombosis develop in a single case; that is o say, I infer that we are dealing with a lesion roduced by the development of an itch and scratch eflex, similar in nature and different in site only to sychogenic pruritus ani.

The response to a special line of treatment of these atients affords the clue to the nature of the disease. . divorce between the patient and the eruption is f fundamental importance. The actual nature of he local applications is of less moment. It is my ractice to put these patients to bed with the affected g raised upon an inclined plane, to deal with any mall sepsis by a few white lint fomentations, and hen to dress the leg with frequently renewed normal line compresses. Local treatment by a small dose f X rays and by the application of highly coloured tions, such as Sir Lenthal Cheatle's malachite green r brilliant blue, I regard as being useful in minister-g to the patient's ego. The leg is the centre of their iterest, without it life would be blank indeed, and he treatment that is directed towards replacing the d colour on which they have looked with interest r so many years, and by which they are prevented from rubbing the leg with the opposite heel or big toe nail or by their hands, will achieve a cure. We are all familiar with the grosser artefact lesions such as sloughs produced by spirits of salts and erythema produced by soda or turpentine, but there is a special group of unconscious artefact dermatitis found in suggestible patients; the distribution of their lesions is directly comparable to the glove or stocking anæsthesia familiar to general physicians and to neurologists. It is parallel also to the group of cases of dermatitis to which Dr. H. W. Barber applied the term "compensation complex" in *Guy's Hospital Gazette* (1930, xliv., 399).

This eczema of the legs is a common and persistent cutaneous disorder which from its peculiar and constant distribution entitles it to recognition as a clinical entity; furthermore, it is my opinion that it develops only in neuropathic patients. The treatment I counsel is the institution of general light baths, luminal in small doses to lower the patient's sensitivity to peripheral sensations, an occlusive dressing is needed for ambulatory cases; in bed we place the lesions under constant observation to prevent rubbing and scratching; this last is of more importance than treatment specifically directed against the inflamed skin.

PANEL AND CONTRACT PRACTICE

ANNUAL PANEL CONFERENCE.

THE Annual Conference of representatives of local edical and panel committees met in the Great Hall the British Medical Association on Oct. 22nd; r. H. J. CARDALE took the chair for the second time. he most important business concerned the

National Economy Proposals.

Dr. H. G. DAIN, Chairman of the Insurance Acts ommittee, British Medical Association, moved that e Conference approve a long supplementary report tlining the circumstances of the reduction which e Government had made in the remuneration of eneral practitioners, and containing the corre-ondence which had passed between the I.A.C. nd the Ministry of Health. The May Commission ad, he said, issued its report on the last day of July; o premonition of the contents of that report had een published by the Government of the day, even the House of Commons. He and his colleagues ad immediately been impressed with the extreme justice of the paragraph relating to insurance ractitioners. Parliament had risen for the summer acation and the Ministry could take no action until t reassembled in October; the I.A.C. had been due o meet in September and discuss the report. The hange of Government and the financial crisis had ccurred, and the new Minister of Health, Mr. Neville hamberlain, had invited the Committee to send a ew representatives to discuss the situation with him nd the Secretary of State for Scotland before the overnment's proposals were made known and before Parliament reassembled. The Minister had disclosed o these representatives in private the extreme seriousness of the national situation, and had stated that the Government proposed to accept very largely the recommendations of the May Commission and to ask that the panel practitioner should accept a reduction of a shilling on the capitation fee as his share of the economy measures. The deputation had asked the Minister whether he really meant the capitation fee to be reduced, and Dr. Dain himself had stated definitely that a reduction would raise the question of the merits of the capitation fee of 9s., and that the committee would be prepared to go into that question with him; if, on the other hand, the Minister was not raising the question of the merits of the fee, but dealing with a national emergency, it would be better to reduce the fee by one-ninth. The Minister had replied that he had not intended to reopen that question, and had then given an undertaking that the money realised by the deduction of the shilling would go into the Treasury for the relief of the national emergency and would not be merged in any variety of national health insurance. The chemists were also, he had said, to take their share in the retrenchment.

The deputation had then pointed out that a reduction of a shilling represented not one-ninth, or 11 per cent., but more nearly 15 per cent., when allowance was made for the fact that the fee was not a salary but a remuneration for service, and not a net fee, but subject to the deduction of expenses for the conduct of practice. The Minister had assured the deputation that when it saw the whole of the Government's proposals it would be satisfied that the insurance practitioner was not being unfairly dealt with. He had given explicit assurances that these proposals were to be put through as a balanced scheme and were not capable of modification in any circumstances. The deputation, on those assurances, had undertaken to lay the matter before the committee and recommend that the panel practitioners should accept the proposal. An emergency meeting of the committee had been called a few days later, and it had agreed with the action of its representatives. It had thereby taken its courage into its hands and decided to recommend panel practitioners to accept the proposals of the Government.

NO ALLOWANCE FOR EXPENSES OF PRACTICE?

A week later the Minister had stated in Parliament that the proposals concerning the teachers, army, navy, and police had been modified to an all-round reduction of 10 per cent. Dr. Anderson had immediately written to the Minister that, since the alteration had been made for other people, the offer to the panel doctor was obviously reopened and that the I.A.C., which was to meet on the following day, would have the matter under consideration. The Minister had sent for Dr. Dain and had said that he was not able to implement the conditions under which he had made his last offer; he had expressed himself as very sorry to be placed in the position he occupied, but had said that he was unable to persuade the Government to modify the shilling reduction. The committee, at its meeting on the same day, had pointed out the injustice of the position, and had argued that, if the shilling reduction had been fairly comparable with the other reductions in the Government's balanced scheme, it could no longer be held equitable. The Minister had interviewed the Chancellor of the Exchequer, and the committee had received a letter in which the unfairness of leaving the doctors' reduction at a shilling was recognised and the proposal made to impose a 10 per cent. reduction. Dr. Dain had pointed out in reply that this proposal was entirely inacceptable, and that the committee were not likely to accept a reduction of more than 10 per cent. after an allowance for expenses had been made. After a long discussion the committee had agreed to this attitude; the Minister had met them the same evening in his room at the House of Commons and had said that he would have to consult the Cabinet. He had subsequently stated in a letter that he was unable to make an offer which would contain an allowance for practice expenses. The committee had replied that they could not accept the offer of 10 per cent. without this allowance, and had therefore laid the whole matter before the present Conference.

Dr. Dain read another letter which had been received from the Minister on the previous morning. The Minister expressed a strong hope that the Conference would coöperate with the Government in the very difficult task of placing the finances of the country on a sound foundation; while not at all unmindful that the capitation fee was subject to deductions for expenses, he had been unable for general reasons of public policy to take particular account of this fact in making his offer of an all-round deduction of 10 per cent. If the Conference accepted the revised terms, he would regard their action as a full and liberal contribution to the national need, and as justifying the views which he had previously expressed on the attitude of the medical profession.

In conclusion, Dr. Dain suggested that the Conference should approach the problem in two stages: it should first decide whether the action of the I.A.C. in accepting the original proposal had been justified by the circumstances; and then decide whether it would accept the later proposals, protest against them, or refuse service.

CRITICISM OF THE ACTION OF THE I.A.C.

A large number of motions had been put down by various local committees expressing approval of the committee's action and accepting a temporary reduction of 9 or 10 per cent.; many of them protested against having to bear a heavier reduction than other sections of the community. The great preponderance of opinion was strongly with the committee, the chief critics being Middle and London, which thought that the Conference the panel committees ought to have been consulted first, blamed the committee for not combating the statements made in the May report, and advocated radical changes in the personnel and policy of the committee.—Dr. G. H. LOWE (Middlesbrough) moved as an amendment to the motion to accept its appropriate part of the report:

> "That this Conference protests against the action of the Insurance Acts Committee in agreeing to the cut in panel practitioners' remuneration without first consulting the panel conference, or the panel committees, or both."

His committee, he said, regarded the action of the I.A.C. as ultra vires; it would, he said, have been practicable to consult the panel committees.—Dr. G. DE SWIETOCHOWSKI (London) said that the general dissatisfaction of the London committees was not altogether with the amount of the deduction nor with the personnel of the committee, but rather with some of the methods employed, which were no longer suited to the needs of the day. It was not sufficient for the committee to meet every three months and talk about the damage which had been done to the interests of the panel practitioner; it should attack ceaselessly all bodies opposed to him. The committee was often spoken of as the spearhead of the Conference; he would like to see it applied with a certain amount of push.

Dr. R. L. E. DOWNER (Shropshire) blamed the committee for not having stamped on the unfair statements in the May report.—Dr. ALEXANDER FORBES (Sheffield) supported the committee, warning the Conference that, although the voice might be the voice of Middlesbrough and London, the hand was that of another body behind them.—Dr. J. LIVINGSTON (Hampshire) suggested that the first offer of the Minister had been in the nature of an ultimatum; Dr. DAIN agreed.

The amendment was lost by a very large majority, and the result was greeted with loud applause after Dr. Lowe had emphatically repudiated the suggestion that his committee were inspired by any other body.

"A TEMPORARY MEASURE ONLY."

Dr. E. R. FOTHERGILL (Brighton) proposed the following motion, which voiced the sense of many others and made it unnecessary for them to be put to the meeting.

> "That this Conference of local medical and panel committees approves the action taken by the Insurance Acts Committee throughout the negotiations with the Ministry of Health with regard to the National economy proposals, and whilst fully recognising the special sacrifices which insurance practitioners are called upon to make, accepts on behalf of insurance medical practitioners the deduction of 10 per cent. from the capitation fee of 9s. as a temporary measure only, and as their contribution in the exceptional conditions in which the nation finds itself, the acceptance of such deduction being without prejudice to the future consideration of the present capitation-rate on its merits."

He pointed out that the economy cuts had been made by Ministers on an Order in Council and not specifically enacted by Parliament. The I.A.C. was announcing to local committees through the members of the Conference that it was futile to oppose the action of the Government. Admittedly, the sacrifice of the panel practitioners was disproportionate, but the country was in many ways back in 1914. The Conference must lay down the principle that the deduction was a temporary measure only. In 1924 a judge, sitting with a jury, had ruled that the capitation fee was 9s., and that ruling held good. Panel practitioners had three possible courses of action: (1) to refuse service—which they would not do; (2) to accept the cut as their contribution o the national need; and (3) to ask the negotiating body to secure some compromise. A compromise would vitiate the clear issue, which was not whether he amount of the fee was equitable, but by how much t ought justly to be reduced. Public opinion, includng local public opinion, would look upon the profession with scornful wonder if it did anything but accept the proposal. He appealed to members to persuade their committees to preserve a possession which was more precious than patriotism.

Dr. E. A. **Gregg** (London) moved the following amendment to the Brighton resolution:

> "That, remembering the sacrifices made by the national health insurance practitioners in previous years in the interest of the nation, and bearing in mind the inadequacy of the capitation fee in view of the work that practitioners are called upon to perform, this Conference (*a*) protests in he strongest possible terms against the proposed percentage deduction from the remuneration of insurance practitioners; (*b*) protests against the inequality of sacrifice as compared with other sections of the community."

He denied that he was speaking as a "hand" or a "foot," or even as a "head." The London committee was supported by the vote of a mass meeting at which any practitioner had been free to express an opinion. While he did not propose that any practitioner should refuse service, or even modify it, he emphasised that t was unwise to use the word "accept." The rofession had shown its patriotism many times in the previous deductions which it had suffered, and the "acceptance" of a further deduction would be ntirely misunderstood. It should be suffered under rotest. Every effort should be made to mitigate the severity of the 10 per cent. deduction from gross income. It was all very well for practitioners to dvocate a sacrifice which would not bear heavily upon them; he would be more impressed by the views of some young man paying for his practice in instalments which absorbed nearly all his panel heque. He refused an alteration suggested by Leicester, according to which part of the amendment would read "protests . . . against the amount of the roposed percentage deduction."

Dr. J. **McNamara** (Nottinghamshire) assured Dr. Gregg that his partner, a young man in precisely the position which the speaker had outlined, was satisfied that the committee had done right, and asked the Conference to support its tried leaders in preference to others.—Dr. J. O. **Summerhayes** (East ussex) likened the Government to a woman patient whose husband, "old Bill," spent all his money treating his friends in the public-house and had to go on reating in order to keep his job. As a doctor and a gentleman, he would not haggle with that woman, but would take what she said she could pay. The "old gang" trusted the committee up to the hilt. He repudiated the insinuation contained in certain circulars asking the profession to take another course. —Dr. **Mabel Ramsay** (Plymouth) quoted the resolution of the standing committee of the Medical Women's Federation, accepting the reduction as a temporary measure and approving the action of the committee. She asked for a definition of "temporary," pointing out that some authorities predicted the continuance of the depression for several years.

Dr. G. G. **Genge** (Croydon) supported the London motion. He held that the real cut was approximately 20 per cent., and accused the committee of posing in a patriotic halo and burning incense before the Ministry of Health.—Dr. W. A. **Marris** (Birmingham) was for swallowing the pill gracefully, without protest, since there was no possiblity of avoiding it.—Dr. R. G. **Chase** (London) supported Brighton, and declared that the mass meeting had not truly expressed the strength of the London opinion in favour of the committee.

Dr. E. O. **Turner** (Buckinghamshire), Dr. K. M. **Foster** (Worcester City), Dr. T. **Craig** (Northumberland), and Dr. T. H. **Bates** (Newcastle-on-Tyne) supported the committee unreservedly, the latter holding that sufficient protest had been made and that the committee had not accepted the imputation of the May report.—Dr. **Dain** was greeted with applause when he spoke to some of the points, and Dr. **Gregg** denied that he had exercised undue influence over the mass meeting.

The London amendment was lost by a very large majority, and the motion by Brighton was carried with three dissentients.

Dr. **Dain**, in answer to a motion by Middlesbrough, said that the May report was sufficiently discredited by the fact that none of its recommendations had been accepted by the Government. The Conference carried, with only two dissentients, an amendment by Dr. H. B. **Brackenbury**:

> "That this Conference protests in the strongest possible manner against the unsubstantiated statement made in the paragraph of the May report that payments to doctors are too high."

The following motion by London, originally part of the amendment:

> "That this Conference urges that the question of the adequacy of the capitation fee be taken up with the Ministry of Health at the earliest suitable moment,"

was carried unanimously.

The New Disciplinary Machinery in Certification Cases.

A previous conference had agreed that panel committees might be grouped together for the purpose of providing professional committees to hear cases concerning certification. The lists of groups prepared by the Ministry aroused much criticism.—Dr. N. J. L. **Rollason** (Coventry) moved a resolution strongly objecting to the grouping of all panel committees of England and Wales, and stating that the principle of a forced amalgamation would undermine the stability and authority of the panel and local medical committees. He said that the panel committees were perfectly competent to do the work, and that under the new principle the Ministry would tend to deal exclusively with the regional committees. Several speakers supported this argument, and displayed a widespread objection to the whole scheme.—Dr. C. R. **Lunn** (Warwickshire) voiced the complaint of a residential area against being amalgamated with a neighbouring industrial area, and a fear lest the idea should be extended to cases of excessive prescription.—Dr. **Peter Macdonald** (York) said that, although a previous conference had agreed that the principle of grouping was desirable, yet this did not mean a general consent to the grouping of all panel committees.—Dr. **Dain**, who had already pointed out that no panel committee would be prevented from dealing with its own cases if it wished to, undertook to request the Ministry to assume that every panel committee would prefer to hear its own cases unless it agreed to be part of a group, and that every panel committee should be asked which course it would prefer. On this assurance, the Coventry motion was withdrawn.

The decisive victory of the I.A.C. over its critics earlier in the day made certain the rejection of motions by Durham and Wigan to prohibit it from taking important action without consulting the local committees. A motion by Carlisle for the formation of a new negotiating body exclusively composed of and elected by insurance practitioners, called forth a convincing speech by Dr. Dain on the constitution and record of the committee, and was heavily defeated, as was also a proposal by London to set up a committee to inquire into its constitution. A suggestion by Hastings that panel practitioners should have a journal to themselves was accepted by Dr. Dain for reference to the committee.

The National Insurance Defence Trust.

Mr. BISHOP HARMAN, treasurer, showed that the finances of the Trust were in a sound condition. Of the desired sum of £250,000, £170,000 had already been subscribed. He reproached vigorously the areas which had not yet paid up their quotas.

Much anxiety was aroused by the proposal of the I.A.C. to use part of the interest for pensioning off infirm panel practitioners to improve the service, and on subsidising lectures to final-year students. While the Conference would not pass an amendment by East Sussex prohibiting the use of the funds for the former purpose, it carried by a small majority an amendment by Brighton to delay their use until the total had been collected, and Dr. Fothergill was also successful in persuading the Conference not to allow the funds of the Trust to be used at all for the latter purpose. The first part of the proposal was accordingly withdrawn.

Dr. H. C. JONAS (Barnstaple) was elected chairman of the Conference, no other nomination being received.

SPECIAL ARTICLES

MEDICINE AND THE LAW.

Workmen's Compensation: Miners' Nystagmus.

THE House of Lords has just given judgment in lengthy litigation over a case of miners' nystagmus. Technically this is an "industrial disease" for the purposes of the Workmen's Compensation Act, compensation being awarded for it as for an accident. Lord Buckmaster explained in the course of his judgment that, if a man completely recovers from the disease, any fresh attack amounts to an independent accident; after complete recovery there may be a recurrence owing to the original susceptibility; if recovery is not complete, there is an added probability of recurrence. It is perhaps not surprising that mine-owners should make it a condition of employing a man that he should first declare that he has not suffered from miners' nystagmus.

In the recent case, a Lanarkshire miner had been disabled by the disease early in 1928 and had then received compensation as for total incapacity. Later on two occasions he was certified fit for work on the surface, whereupon the incapacity was deemed partial instead of total. In September, 1929, he was certified to have recovered from his attack of miners' nystagmus and to be fit for ordinary work. His employers consequently sought to terminate the payment of compensation. The miner, however, denied complete recovery. He said he could not get work on full wages because he had contracted the disease; he contended that his diminished earning power was due to the attack, and that his disablement and incapacity were still continuing; he therefore claimed the continuance of compensation. The arbitrator inclined to the miner's view; on appeal the Court of Session held that the compensation ought to be terminated, recovery having been certified. Finally the House of Lords, before deciding the issue, found it desirable to clear up the ambiguity about the extent of the recovery. The case was therefore remitted to the arbitrator so that the medical referee could answer the following question—did his certificate of recovery mean that the workman had completely recovered in the sense that he was not, after and in consequence of the attack, more susceptible to the disease than he had been before? The medical referee answered in the negative. The House of Lords thereupon held that the Court of Session had been wrong in treating this as a case of complete recovery. The referee's answer left open the question whether, after the ordinary symptoms had passed away and recovery appeared to have taken place, exposure to the same conditions might not cause immediate recurrence. Complete recovery could not be asserted; the rest was merely a matter of degree. The arbitrator was not obliged to terminate the compensation, but might consider the evidence as to continued disablement and incapacity.

Broken-down Motor-cars.

As most members of the medical profession own or use motor-cars, they are interested in a recent announcement of the Ministry of Transport as to the towing of disabled motor vehicles. The Road Traffic Act, as is well known, requires all motorists to be insured against third party risks. Certain insurance policies exclude liability where the insured car is hauling a trailer. A disabled vehicle has somehow been deemed a trailer in the eye of the law. In these circumstances motorists have been fined for giving a tow to a broken-down car on the ground that, when doing so, they are uninsured. This seems the limit of unreason. There is no insuperable difficulty in distinguishing a broken-down car from a trailer; the feat is not beyond the powers of policemen and magistrates; the constable and the justice must indeed have been ill-employed if they had nothing better to do than to promote and entertain such prosecutions. Fortunately common sense has prevailed. The Minister announces that, after consulting the insurance companies and Lloyd's underwriters, he understands that all authorised insurers have agreed that a policy excluding the hauling of a trailer shall not exclude the hauling of a disabled vehicle provided that no charge is made for such hauling and provided further (a perhaps unnecessary precaution) that the number of vehicles towed does not exceed the number of trailers permitted by the Road Traffic Act. Insurance policies will not require alteration in order to give effect to this modification.

For the statutory conditions under which a vehicle may be towed we must turn to the Motor Vehicles (Construction and Use) Regulations of last January. The Minister of Transport therein enacts that no motor vehicle shall tow any other vehicle unless the tow-rope or chain be so adjusted that the distance separating the nearest points of the two vehicles shall not exceed 15 feet, and steps shall be taken to render the tow-rope or chain easily distinguishable by other users of the road. These Regulations also provide for such matters as the brakes of, and employment of attendants on, trailers; but neither the Regulations nor the Act itself would seem t encourage confusion between a trailer and a broken-down car. As to broken-down cars there are special Regulations under the London Traffic Act within the London Traffic Area. The owner or driver is liable to fine if he allows a motor vehicle to be in a street in such a condition that it breaks down, though he can defend himself by proving that he took all reasonable steps to put and maintain it in proper order. When his vehicle is broken down, he must remove it from the street as soon as practicable. A constable in uniform if he thinks reasonable steps have not been taken to remove the vehicle or that it constitutes a danger to traffic may forthwith remove it or use the services of others for the purpose, recovering the expense from the owner. In doing so, the constable is not to be liable for damages except upon proof of failure to exercise reasonable care.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

LEGISLATION ON THE MILK-SUPPLY.

LAST week Mr. R. Mulcahy, Minister for Local Government and Public Health, addressing a conference of local health authorities in Dublin, gave the outlines of the Bill which he is shortly to introduce to the Dáil to deal with the control of milk in the Irish Free State. The Bill is based on the work of an interdepartmental committee which presented a report in the spring of 1928. The long delay in introducing the Bill is all the more puzzling in that its provisions were outlined in the Dáil as long ago as July, 1929. In his address Mr. Mulcahy said that clean milk could be produced without any great expenditure on the construction or alteration of byres. Method rather than building determined its hygienic properties. The regulations would in time not alone deal with the lighting, ventilation, cleansing, drainage, and water-supply of dairies, but would secure a more thorough supervision, inspection, and examination of dairy cows, the proper grooming of the animals, personal cleanliness of milkers and distributors, the cooling of milk, and its conveyance and distribution in sterilised vessels and utensils. The registration of all persons carrying on the trade of dairyman, in addition to the registration of premises, would be made mandatory. It was further proposed to introduce a system of grading, to authorise the use of special designations, to define and control pasteurised milk, to prohibit the use of misleading terms, and to impose drastic penalties on the selling of dirty milk.

A CONFERENCE ON PUBLIC HEALTH.

The second conference on health of representatives of the public health authorities, arranged by the Department of Local Government and Public Health, was held in Dublin this week. The first had been held in July, 1930. The special subjects for discussion at this week's conference were the housing problem and the protection of the milk-supply. The discussion on housing was opened by an address from Mr. R. Mulcahy, Minister for Local Government and Public Health.

DINNER OF THE ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

As St. Luke's Day this year fell on Sunday, the President and Fellows of the Royal College of Physicians of Ireland held their annual dinner on Saturday, the eve of St. Luke. Prof. T. G. Moorhead, who is entering on his second year as President of the College, was in the chair, and there was a company of some 85 Fellows and guests. The principal guest was Mr. James McNeill, Governor-General of the Irish Free State.

DEATH OF DR. THOMAS NEILL.

The death of Dr. Thomas Neill, for many years a well-known gynæcologist in Dublin, occurred on Oct. 23rd, after some weeks' illness, in his seventy-fourth year. He had been much disabled for some years by rheumatism, and retired from practice a few months ago. Dr. Neill had a distinguished career in science in Trinity College, Dublin, and after taking his degree devoted himself for several years to the teaching of science. He subsequently entered on the medical curriculum, and took his medical degree in 1897. He was for a time assistant master in the Coombe Lying-In Hospital, and for many years was gynæcologist to the Drumcondra Hospital. He had also a large private practice. Modest and retiring in manner, Neill never took a large part in public professional affairs. He was, however, held in respect by all members of the profession, and very warmly esteemed by those who had the privilege of his friendship.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

RATS AND CATS.

THE first international conference on the rat was held in Paris in 1928, and its indefatigable secretary-general, Prof. Gabriel Petit, was able to present a report of it when the second conference met on Oct. 7th. This 400-page work (published by Vigot Frères, 23, rue de l'Ecole-de-Medecine, Paris, 80 francs) is a remarkably comprehensive survey of all or nearly all that appertains to the rat, and it was in a sense the text-book of the second conference. Among the contributions to the conference was one of considerable interest on the rat and plague in Madagascar by Surgeon-General Letonturier. Prof. Marchoux dealt with the rat and leprosy, and Prof. Brumpt with the parasites of the rat and their rôle in human pathology. Dr. Dujardin-Beaumetz, of the Pasteur Institute, and Dr. Hauduroy reported on the possibilities of conferring immunity to plague on the rat.

One of the most instructive excursions was that made on Sunday to Havre, where delegates had an opportunity of studying a promising scheme of breeding superlatively rat-catching cats, introduced by Dr. Adrien Loir, director of the public health service of Havre. It is a melancholy reflection on the sanity of man that while millions of pounds and other more or less valuable currencies have been spent on breeding horses which will run just a little faster, if it be only by a head, than other horses, little thought and less money have been devoted to the task of evolving a breed of cat so intensively ratophil that the satisfaction of this instinct becomes almost its only craving in life. The idea is, of course, not new. Robert Koch, among others, realised the necessity for encouraging the breeding of rat-catching cats. But it is the great merit of Dr. Loir to have transformed this idea into something more material, and to have put it on a both scientific and practical footing. Let us hope that when the perfect rat-catching cat has been evolved by selective breeding and in such numbers that no more rats are to be found on the face of the earth, we shall not find ourselves saddled with a new species of animal whose existence raises fresh and unexpected problems.

FOREIGNERS IN FRENCH MEDICAL SCHOOLS.

Foreign medical students who find their hosts looking askance at them may extract what comfort they can from the reflection that it is not so much their quality as their quantity which disturbs the French. The statistics are illuminating. According to Prof. Balthazard's recent report, referred to in the *Presse Médicale* for Oct. 10th, out of a total of 11,375 medical students in 1930, as many as 3147 were foreigners. It is curious to find how greatly the proportion varies in the different medical schools. In Lille, for example, they constitute only 4½ per cent., in Marseilles only 6½ per cent., in Bordeaux only 8½ per cent. The percentage rises to 10 in Lyons, 19 in Toulouse, 34 in Montpellier, 36 in Paris, and 53 in Nancy. Prof. Sergent has remarked that the invading medical students come from the countries in which limits have been put to their numbers—especially Rumania. In 1913 only 50 Rumanian medical students were registered in Paris, but now there are 511, and it is anticipated that 800 will want to be registered in 1932. At Bucharest, on the other hand, the number of medical students has been limited to 150. If, as has been suggested with some show of plausibility, the countries which limit the number of entries to their own medical schools keep their most promising students at home and let the rest go abroad, then France may be justified in complaining not only of the quantity but also of the quality of her guests.

THE LÜBECK TRIAL.

(FROM OUR BERLIN CORRESPONDENT.)

(*Continued from p. 928.*)

It is now evident that counsel for Dr. Altstädt and Dr. Klotz are out to make it appear that Dr. Deycke did not prepare the Calmette remedy according to its inventor's instructions, and that his laboratory was not in a satisfactory condition. If that could be proved their clients who had recommended the introduction of the B C G would not be guilty. Counsel for Dr. Deycke are trying to show that the original preparation became virulent without any fault on Dr. Deycke's part, and that the disaster was due to an accident which could not have been forseen.

In concluding his examination Dr. Altstädt was asked by the public prosecutor whether he knew that the B C G was cultivated in Lübeck on an albuminous medium, instead of the medium prescribed by Prof. Calmette, so that the stronger medium might have made the bacilli virulent. Dr. Altstädt replied that the compound used in Lübeck had possibly become dangerous by adulteration.

Prof. Deycke was then examined. He stated that he had worked under Koch during the cholera epidemic in Hamburg in 1893, and the German Government had sent him to study leprosy in Turkey, and later in Guiana, where he had detected a hyphomycete in leprous patients. Working with Dr. Much he had isolated an antituberculous antigen known by their names. In 1913 he was appointed head physician to the Lübeck State Hospital, and had there instituted a laboratory where, for the production of this remedy, tubercle bacilli were cultivated on a large scale. He was of opinion that dead bacilli should be used for therapeutic purposes, and living bacilli for *immunisation*. Dr. Schmincke, for the prosecution, asked Prof. Deycke whether he really thought that the infection of a person with tubercle bacilli was sufficient to immunise him against tuberculosis. Counsel for Prof. Deycke protested against the question as absolutely unscientific. Counsel for the parents thereupon remarked that Prof. Deycke had not answered a plain question. On the following day Prof. Deycke rose to declare that he had committed a scientific error in administering the B C G, and asked for indulgence from the parents because he had devoted his life to the care of the tuberculous. If anyone was guilty, it was himself alone, and no reproach should be made to Dr. Altstädt, Prof. Klotz, or Nurse Schütze who had worked under him for 17 years without an error. He declared he had come to the conclusion that the B C G had become spontaneously virulent, but that any spoiling or compounding of the B C G with virulent bacilli was out of question. Counsel for the parents said that Prof. Deycke had put forward that theory to excuse the condition of his laboratory which, according to a report of Prof. Lange (of the German Health Office) was far from satisfactory. Prof. Lange himself then gave evidence to the effect that in inspecting the laboratory after the disaster he had found that a separation of the B C G from other tubercle bacilli was not completely carried through. He had found a flask containing human tubercle bacilli in the anteroom of the laboratory.

Prof. Klotz (head of the Lübeck Children's Hospital), the third plaintiff, said that together with Dr. Deycke and Dr. Altstädt, he had recommended to the Lübeck authorities the administration of B C G, after a thorough study of the question had convinced him that it was absolutely innocuous. When the first victims were sent to his hospital by Lübeck practitioners under various diagnoses and when after the post-mortem examination of the first child tuberculosis was found, neither he nor Prof. Deycke, whom he had informed, believed that the child's death was due to the B C G, as the child came of tuberculous parents. Asked by the presiding judge what measures were taken when the first cases of infection had become known, Dr. Klotz answered that in fact nothing could reasonably be done after it had become obvious that the children had been infected by living bacilli. Sensation was then caused by Prof. Deycke's counsel rising to report that a similar disaster had happened in Pernik (Bulgaria), where, after the use of the B C G on 280 children, 75 had died and 111 had become seriously ill. He applied to the court for the Bulgarian medical man who had stated these facts to be summoned to give evidence either in person or on commission. The judge said the court would consider the suggestion later if necessary. On the following day counsel for the parents stated that he had telephoned to Paris and to Bulgaria, and had been informed by the Pasteur Institute and by the Bulgarian Ministry of Health that nothing was known in those quarters of the facts alleged by Dr. Deycke's advocate.

The hearing is continuing.

A PICTORIAL CHILDREN'S AMBULANCE.—To allay the apprehensions of children being taken to hospital, the Manchester Children's Hospital has altered the appearance of its ambulance. Hitherto it has been painted in dark hues, but it has now been repainted white, and modern nursery favourites are represented in bright blue.

LONDON MEDICAL EXHIBITION.

THE annual London exhibition of drugs and surgical appliances was held in the Royal Horticultural Society's Hall, Westminster, from Oct. 19th–23rd. Despite the trade depression, it was well attended and business seemed to be brisk. It is impossible to do justice to the very varied display of new and well-tried products, all of them of interest to practitioners, but the following account will serve to introduce a few of the innovations and to remind readers of old friends.

Drugs and Pharmaceutical Preparations.

(90-91) ALLEN AND HANBURY'S, LTD. (Bethnal-green, E.), drew special attention to Eucortone, a suprarenal cortex extract which has proved as successful, they say, in Addison's disease as insulin has in diabetic coma; Eulaxase, a combination of biliary and intestinal secretions with agar-agar and *B. acidophilus*, enclosed in a special coating of activated charcoal; Kapsol vitamin E (wheat germ oil), for the treatment of sterility and habitual abortion; and vitamin glucose C.D., a pure powdered medicinal glucose containing a prophylactic complement of vitamins C and D.—(116) The ANGLO-FRENCH DRUG CO. (238A, Gray's Inn-road, W.C.) had a special display of Bacte-phages prepared under the control of Prof. d'Herelle. They also pointed out Bivatol, a liposoluble bismuth in 2 c.cm. ampoules for spirochætal infections; and Hypotensyl, the active principles of viscum (gui) with gland extracts, for the treatment of conditions associated with high blood pressure. —(7) ARMOUR AND CO., LTD. (St. Martin's-le-Grand, E.C.), had their usual display of Glanoid gland preparations and beef extracts, specially drawing attention to fluid extracts of liver; a 40 per cent. spleen solution for eczema and urticaria; and sterile catgut ligatures.—(44) BAYER PRODUCTS, LTD. (19, St. Dunstan's-hill, E.C.), selected for special attention from among their products Lacarnol, a nucleosid extract for dilating the coronary arteries; Prolan, an anterior pituitary hormone; and Novalgin, a pyrazolon derivative for rheumatism. They also showed the Behring Venule, their ingenious automatic aspirating syringe for the collection of body fluids, now being used for the Bendien test.—(110) C. L. BENCARD, LTD. (184, Wardour-street, W.), presented Exhepa liver extract in powder form prepared from fresh liver only and in ampoules for hypodermic injection; also Hepa-Simplex, a special liver extract for secondary anæmia only. These two products are manufactured by the Danish Therapeutic Co., Ltd., Copenhagen. Leo Gastrosic desiccated hog's stomach tissue, and Leo Sulfosin are manufactured by the Leo Chemical Works, Copenhagen.—(5) BENGUE AND CO., LTD. (24, Fitzroy-street, W.), in addition to their well-known balsam, ethyl chloride, Forxol, Opobyl, and Pulmo Bailly, showed Passiorine, an extract of passion flower, for nervous disorders.—(87) BISODOL, LTD. (12, Chenies-street, W.C.), showed their well-known antacid and digestive.—(148) BOOTS PURE DRUG CO., LTD. (Nottingham), picked out from their many products Amyl Meta Cresol, an antiseptic with a Rideal Walker coefficient of about 280, issued in capsules, in a solution for dental work, and also in glycerin of thymol pastilles; antipneumococcus Serum (Lederle); insulin; liver extract; and the specific products Bismostab and Chloramine-T.—(162) BRISTOL-MYERS CO. (112, Cheapside, E.C.) needed no introduction for Sal Hepatica, Ipana Tooth Paste, and Ziratol antiseptic.—(61) BRITISH ALKALOIDS LTD. (Winchester House, E.C.) introduced the well-known T.C.P. in a new rôle: as an electrolyte for ionisation in arthritis and neuritis, and also as a cough-mixture, acting by oxygenating the blood in the lungs.—(140) BRITISH DRUG HOUSES, LTD. (Graham-street, City-road, N.), showed their many familiar products, particularly Livogen, a combination of liquid extract of liver with vitamins B_1 and B_2 and hæmoglobin; Ergodex, a standard and stable preparation of ergot; and Avoleum, a new standardised vitamin A concentrate; they also demonstrated the apparatus by which their vitamin products are standardised.—(164) BRITISH ORGANO-THERAPY CO., LTD. (22, Golden-square, W.), had a wide range of glandular products as capsules (Opocaps) or ampoules for injection (Opojex), notably prostatic extract, ovarian residue Opojex for midwifery; Evatmine for asthma, hay-fever, and urticaria; and Splenosol, a hog-spleen extract for eczema and urticaria.—(114) BURROUGHS WELLCOME AND CO. (Snow Hill Buildings, E.C.) had several new products since last year, including Barolac, a barium sulphate suspension for use in radiographic examination of the alimentary tract; Hypoloid sodium morrhuate, a sclerosing agent stated to minimise the risk of injection ulcer; and tabloid Carotene. They also showed Diginutin, a physiologically standardised digitalis preparation; and Epinalin, for injection of adrenalin and ephedrine. Some interesting stereoscopic transparencies illustrated the technique of hypodermic injection.—(1) G. W. CARNRICK CO. (London agents: Brooks and Warburton, Ltd., 232-240, Vauxhall Bridge-road, S.W.) displayed their well-known gland products, particularly Incretone, a liquid endrocrine tonic; and Trypsogen, in the new enterosol coating.—(13, 14, and 155) COATES AND COOPER, LTD. (94, Clerkenwell-road, E.C.), showed the products of the various foreign firms for which they are distributing agents.—THE BIOCHEMICAL LABORATORIES, LTD., Locarno, were specially showing Disulphamin, an antipyretic for colds, influenza, pneumonia, and septic infections.—KRAUSE MEDICO, München, had on view a number of products prepared by their patent desiccation process, whereby the active principles of vegetable or animal products are obtained absolutely intact.—A-S. SERPENS, Copenhagen, showed Idozan, a neutral colloidal iron solution, of which large doses can be given.—TEMMLER CHEMICAL WORKS, Berlin, showed the Speton contraceptive tablets; Spetonex, a water-soluble jelly; and Tempino pine bath charges. —GOMENOL LABORATORIES, Paris, showed the preparations of their analgesic deodorising antiseptic.—The BATTLE CREEK FOOD CO., Michigan, advocated Lacto-dextrin for changing the intestinal flora, and Psyllium Seed as an aid to inefficient colons.—REED AND CARNRICK, Jersey City, U.S.A., showed their well-known endocrine preparations, including Nephritin for renal disease; Endomin, for anæmia, Ovacoids and Testacoids; Thyracoids; Ampacoids for subcutaneous injection; and single gland products.—(11) CONTINENTAL LABORATORIES, LTD. (30, Marsham-street, S.W.), familiar as the originators of Taxol, also showed Botol, a safe preparation of bromoform, for coughs; and Veinotrope, a tablet preparation for the treatment of diseases of the veins.—(117–18) CROOKES COLLOSOLS (Gorst-road, Park Royal, N.W.) had added to their well-known colloidal preparations F.C.V.D., an iron and copper mixture with vitamin D in malt extract, and also a new Collosol iodine solution. They pointed out that their vitamin D preparations are made up for oral administration only, in accordance with the recent work of Dixon and Drummond suggesting that injection is ineffective. Their invaluable tannic acid spray for burns is now supplied in a strong metal case.—(97) J. C. ENO, LTD. (Pomeroy-street, S.E.), showed the famous fruit salt. —(150) EVANS SONS, LESCHER AND WEBB, LTD. (56, Hanover-street, Liverpool), in a large display of drugs and soaps, drew particular attention to Hepatex P.A.F. for injection treatment in pernicious anæmia, and Hepovite, a liver and vitamin preparation for oral administration; suprarenal cortex extract for Addison's disease; and Ephregel nasal jelly, for colds and hay-fever.—(25) FEEN-A-MINT PRODUCTS, LTD. (Bush House, W.C.), persuaded visitors to crunch one of their little yellow tablets of cod-liver oil with vitamins A and D. The oil of wintergreen flavouring well disguised the fish taste, and each tablet is claimed to have not less than 500 vitamin A units and 200 vitamin D units, equal to a teaspoonful of the highest grade oil.—(165) GENATOSAN, LTD. (Loughborough, Leicester), were old friends to most visitors, with Formamint, Sanatogen, Cystopurin, *detoxicated* vaccines and Genaspirin; the last-named has now blushed a rosy pink to influence patients who think that a plain white tablet will do them no good. —(95, 96, 109) GLAXO LABORATORIES (56, Osnaburgh-street, N.W.) were showing Adexolin vitamin A and D capsules for infectious processes, as well as Ostelin vitamin D; a colloidal calcium suspension with vitamin D; and antivirus preparations—staphylococcus, streptococcus, and acne.—(42) C. R. HARKER, STAGG & MORGAN, LTD. (Emmott-st., E.). Petrolax.—(166) KAYLENE, LTD. (Waterloo-road, N.W.).—(59) LACTÉOL DU DR. BOUCARD (30, Rue Singer, Paris), and (75) PETROLAGAR LABORATORIES, LTD. (Braydon-road, N.), were there with their respective preparations, which are now well-tried favourites for intestinal disorders.—(121) C. J. HEWLETT AND SONS, LTD. (35–42, Charlotte-street, W.C.), showed their familiar and proved medicinal preparations, such as Hepatogen and Somnigen.—(71) The HOFFMANN LA ROCHE CHEMICAL WORKS, LTD. (51, Bowes-road, N.), had many well-tried preparations to show, and especially mentioned Sedormid sedative and hypnotic, and Larocain, a cocaine substitute for opthalmological and ear, nose, and throat work.—(45) HOWARDS AND SONS, LTD. (Ilford), had many fine chemicals on show, and drew attention to Agotan and Agotan ointment for rheumatism and allied complaints; Quinisan, a new salt for colds and influenza; Optochin hydrochloride, a specific for pneumococcic infections of the eye; and standard ether for anæsthesia.—(122) JOHNSON AND SONS (Hendon Way, N.W.) showed their various chemicals, particularly Arvitin, a true silver vitellin prepared from silver combined with the vitellinic acid of egg yolk, and also their Elixir Cascaræ Aromat, Johnson's Examarata, a sound and palatable preparation.—(49) KEEN, ROBINSON AND CO., LTD. (Norwich), were stressing the medicinal value of mustard in coughs, colds, rheumatism, febrile conditions, and insomnia.—(99) MAY AND BAKER, LTD. (Battersea, S.W.), amidst a large display of preparations, pointed out Novarsenobillon (914); Soneryl as a hypnotic and analgesic; Crisalbine, a gold preparation for tuberculosis; Opacol, for radiography of the gall-bladder, and Planocaine, a local anæsthetic.—(143) MEDICAL LABORATORIES, LTD. (40, Pall Mall), showed Clauden, a hæmostatic for injection or local application; Spuman, a medicinal foam for inflammations of the female uro-genital tract; and Semori, a foaming contraceptive.—(157) MENLEY AND JAMES, LTD. (64, Hatton-garden, E.C.), showed the popular Iodex; Eskay brand neuro-phosphates; and Pyridium, their successful urinary antiseptic.—(103) H. R. NAPP, LTD. (3 and 4, Clements Inn, W.C.), selected from among their products Anotal, a new combination of phenylcinchoninic acid with ethylurethane, intended for the treatment of rheumatism; Raminal, a mixture containing theobromine-calcium-salicylate, iron phosphates, and chlorophyll, for high blood pressure; and Kerol for the disinfection of the alimentary canal. They had a number of case-records to show the rapid improvement of cases of anæmia under their product Xorox.—(6) NORDISK INSULIN LABORATORIUM (Copenhagen, Denmark) had a stand to introduce Danish Leo insulin, a cheap and reliable form of insulin containing no preservative.—(37) OPPENHEIMER, SON AND CO., LTD. (Handforth Laboratories, Clapham-road, S.W.), reminded visitors of their many valuable preparations, including Bi-Palatinoids, Cocoids, Pulverettes, and Dimol preparations.—(73) OXO, LTD. (Thames House, Queen-street-place, E.C.4), in addition to their various gland products, presented Liveroid, a palatable form of liver therapy, and Oxoid brand vitamin A in capsules for infective processes.—(39) PAINES AND BYRNE, LTD., showed medicinal substances of animal origin, particularly Ovacliman, a specific for the menopause containing calcium, bromine, theobromine, and papaverine; and Cortigen, a preparation of suprarenal for Addison's disease.—(64) PARKE, DAVIS AND CO. (50–54, Beak-street, W.), pointed out Mycozol, an ointment containing chloretone, *salicylic acid, mercury salicylate*, and aromatics for epidermomycosis; Felton's antipneumococcic serum; Theelin—the crystalline ovarian follicular hormone; Ventriculin—dried gastric tissue for anæmia; and anticatarrhal vaccine.—(75) PETROLAGAR LABORATORIES, LTD. (Braydon-road, N.), emphasised the value of Neobovinine 20, a compound of liver extract and beef hæmoglobin for blood regeneration.—(63) The PINEOLEUM CO. (Distributing Agents: Chesebrough Manufacturing Co., Victoria-road, N.W.), had an improved nebuliser for their familiar inhalant, and recommended the addition of ephedrine for asthma.—(58) RESEARCH PRODUCTS, LTD. (12–13, Henrietta-street, W.C.), had on view a wide range of biological, medical, and laboratory products.—(84) PHARMACEUTICAL CORPORATION, LTD. (39, Aldersgate-street, E.C.), exhibited their Novutox self-sterilising local anaesthetic, which, they claim, can safely be injected into infected tissues.—(149) ROBERTS, COLE AND CO., LTD. (37–38, Margaret-street, W.), showed Barmsule brand capsules of brewers' yeast, enclosed in a way which keeps it "live" for long periods without contamination.—(147) SANDOZ CHEMICAL WORKS, LTD. (5, Wigmore-street, W.), stressed Panthesine Balm for all rheumatic, pruritic, and local painful conditions; in addition to their well-known Felamine; Femergin; Ipecopan; Lobeline; and Optalidon analgesic tablets.—(27) SAVORY AND MOORE, incorporating John Bell and Croyden (143, New Bond-street, W.), had a number of new preparations on view, notably Urotropal, an effervescent granular compound for rheumatism, gravel, arthritis, and cystitis; antigermal brand antiseptic, for preparing antiseptic lotions, and senna pod pastilles.—(47) SCHERING, LTD. (3, Lloyd's avenue, E.C.), showed a selection of fine medicinal preparations, including Neotropin, a urinary antiseptic and general internal disinfectant, active in either acid or alkaline media; Progynon, a concentrated female sexual hormone, in dragées and ampoules; Uroselectan B, the contrast agent for pyelography; and their well-known Veramon, Medinal, and Atophan.—(125) E. H. SPICER AND CO., LTD. (Endocrines, Ltd., Watford, Herts), had on view Nembutal Sil., the new barbiturate preoperative sedative, also valuable in obstetric work; as well as Edwenil, a polyvalent antibacterial agent; and Globenil, which is making progress in the treatment of inoperable cancer cases.—(46) WHIFFEN AND SONS, LTD. (Carnwath-road, S.W.), showed a full range of specialties, including the Staniform antiseptic preparations, which combine tin and a methyl radicle with iodine; Gelozone, a new health food made from Carragheen seaweed gelatine; Euphyllin, a diuretic and vasodilator; Emetine, of which they are the sole manufacturers; and Salicin, of which they are the only British manufacturers.—(138) CHAS. ZIMMERMANN AND CO. (CHEMICALS, LTD.), (9–10, St. Mary-at-Hill, E.C.), showed a number of interesting preparations, including Ultraferran colloidal iron tablets; Chinosol, a water-soluble antiseptic, particularly useful as a mouth-wash; and Asthmolysin (Weiss), a standardised suprarenal pituitary compound for asthma.

Foods and Drinks.

Many well-known and popular food-stuffs were on view. (146) ARKINA EXPORT CO. (72–73, Dunster House, Mark-lane, E.C.), Arkina Natural mineral water from the spa near Lausanne.—(31) BANTAM PRODUCTS, LTD. (9, Queen Victoria-street, E.C.), Bantam coffee.—(93) BOVRIL, LTD. (148–166, Old-street, E.C.).—(72) BRAND AND CO., LTD. (Mayfair Works, Vauxhall, S.W.), essences, turtle soup, calf's foot jelly, and especially Peptamalt, a new highly concentrated predigested liquid food prepared from beef and barley malt.—(100) CADBURY BROS., LTD. (Bournville), cocoa and chocolate.—(49) KEEN, ROBINSON AND CO., LTD. (Norwich), emphasising the vitamin content of Almata.—(29) FRANK COOPER, LTD. (Victoria Works, Oxford), the Oxford marmalade, horse-radish cream, mint elly, and other preserves.—(77–79) Cow and Gate, Ltd. (Guildford, Surrey), chocolate milk; Sprulac, a new milk-food for sprue; and Peptalac, a peptonised and pancreatised food, prepared under precise conditions in the laboratory, and made in a minute in hot water. —(115) Energen Foods, Co., Ltd. (Willesden, N.W.), diabetic and obesity preparations.—(70) Fassett and Johnson, Ltd. (St. John's Gate Buildings, 36, Clerkenwell-road, E.C.), introducing Eatan, a palatable mixture of amino-acids obtained by an absolute reduction of animal products.—(8) William Gaymer and Sons, Ltd. (Attleborough), ciders and perry.—(95) Glaxo Laboratories (56, Osnaburgh-street, N.W.).—(163) Granose Foods, Ltd. (Watford), gluten bread and biscuits, and the Granose wheat biscuits.—(108) Hovis, Ltd. (London).—(112) Ingram and Royle, Ltd. (45, Belvedere-road, S.E.), their usual wide range of imported mineral waters. (68, 69) Nestlé and Anglo-Swiss Condensed Milk Co. (6–8, Eastcheap, E.C.), specially stressed Lactogen, a balanced infant food.—(17) Oryo, Ltd. (91–93, Bishopsgate, E.C.), a rye crispbread.—(73) Oxo, Ltd. (Thames House, Queen-street-place, E.C.).—(136) Sister Laura's Infant and Invalid Food Co., Ltd. (Springfield Works, Bishopbriggs, Glasgow).—(126–130) Trufood, Ltd. (Wrenbury, Cheshire), humanised and full cream Trufood and Secway.—(123) Virol, Ltd. (Hanger-lane, Ealing, W.).—(80) Vitalia, Ltd. (11, Springfield, Upper Clapton, E.), meat juice.—(85) Vitamins, Ltd. (23, Upper Mall, W.), Bemax vitamin B and Bemax chocolate.—(89) Vitmar, Ltd. (Southfields, S.W.), Vitmar, Melovol, and Cibrons.

Books.

(21, 22) Messrs. Baillière, Tindall and Cox, representing also a number of other firms, drew special attention to "Baillière's Synthetic Anatomy," now complete except for Part X. (The Brain); Strümpell and Seyfarth's "A *Practice of Medicine*"; and Frazer's "Manual of Embryology."—(20) William Heinemann, Ltd. (99, Great Russell-street, W.C.), pointed out Bendien's "Specific Changes in the Blood Serum," McDonagh's "Nature of Diseases," (Section 1 of Part III.), Van de Velde's "Ideal Marriage." "Sex Hostility in Marriage," and "Fertility and Sterility in Marriage"; and Cecil A. Joll's forthcoming "Diseases of the Thyroid Gland."—(33, 40, 41) H. K. Lewis and Co., Ltd. (136 and 140, Gower-street, W.C.1), had on view "Bendien's Diagnostic Methods for Cancer." by A. A. Miller; "Rheumatoid Arthritis and Its Treatment," by Vincent Coates and J. L. Delicati; "A Guide to Human Parasitology" by D. B. Blacklock and T. Southwell; and "Lectures on Psychiatry" by E. D. Wiersma; they also had a range of medical stationery and equipment, particularly a roll-top cabinet for panel records.—(98) John Wright and Sons, *Ltd. (Bristol), selected for special* mention "Index of Treatment" (Hutchison and Sherren); "Physical Signs in Clinical Surgery" (Bailey); "Emergency Surgery" (Bailey); "The Photo-Activity and Therapy of the Tungsten-Titanium Arc" (Burdon-Cooper and Roberts); "The Cardiac Cycle" (Sainsbury); "Pye's Surgical Handicraft" and "Index of Prognosis" (Short).

Miscellaneous.

(66) F. C. Calvert and Co., Ltd. (Gibbon-street, Bradford, Manchester), showed their well-known range of carbolic soaps, dentifrices, and ointments.—(156A) The Food Education Society (29, Gordon-square, W.C.) had their customary display of interesting literature, including "Children's Diet," "Vegetables—Their Use, Abuse, and Neglect," and "The Truth about Fat."—(9) The Gas Light and Coke Co. (Horseferry-road, S.W.) showed their latest improvements in heating and cooling; the Panella gas fire for consulting rooms; the Indusa panel wall heater for larger rooms, which has the great advantage of bringing in fresh air from the outside and warming it; the gas incinerator; and the gas refrigerator.—(94) The Inhaling Drug and Apparatus Co., Ltd. (Windsor House, Victoria-street, S.W.), showed how medicines of all kinds can be administered through the lungs.—(53) The Jaeger Co., Ltd. (95, Milton-street, E.C.), demonstrated again the cosiness of their underwear and rugs.—(67) Kolynos Incorporated (Chenies-street, W.C.) demonstrated their gritless dental cream, denture powder and mouthwash.—(19) The Medical Agency (15, York Buildings, Adelphi, W.C.) claimed to be the only agency giving day and night service.—(161) The Medical Sickness, Annuity and Life Assurance Society, Ltd. (300, High Holborn, W.C.), again appeared under its slogan "Your Own Profession's Society."—(142) The National Ophthalmic Treatment Board (1, High-street, Marylebone, W.) had a stand to explain its national eye service, which ensures examination by an ophthalmic surgeon and the provision of glasses at fixed inclusive charges, ranging from 15*s.* to 33*s.*—(32) The Pepsodent Co. (8, India-street, E.C.) displayed their popular dentifrice; and (156) The *Practitioner* (6–8, Bouverie-street, Fleet-street, E.C.) showed its current issue, containing a symposium on disease of the blood, and its various useful special numbers.

THE COMPLETE DOCTOR.

The session was opened in the Royal Victoria Hospital, Belfast on Oct. 6th, when Prof. Andrew Fullerton took the chair, and Dr. R. M. Beath delivered the annual oration.

What advice, asked Dr. Beath, is most needed by men setting foot in the profession of medicine? "Work, and, above all, work," many would say, but something more is called for to make the complete man. What do we feel most lacking in ourselves and in many whom we meet? Is it not width of learning and of outlook—not in professional matters, but in things in general—a wider interest and acquaintance with other branches of learning? Michelangelo said: "There are sciences which demand the whole of a man, without leaving the least portion of his spirit free for other distractions." Our danger lies in medicine being one of these sciences. Professional work of any sort is of necessity narrowing. Constant association with others engaged in similar work and the required intensity of study cramp the outlook and limit the view. The great men of the medical world of all ages have hewn a way for themselves out of the rut, and have found time to acquire that wider learning which gives them the stamp of educated men, and raises their profession above the dead level of a trade. There is a sort of education, as the philosophers of Greece taught 2000 years ago, which should be acquired, not because it is useful or necessary, but because it is liberal and noble, and affords intellectual enjoyment for leisure hours.

How are we to set about this quest? First, we can learn much by closer association with our fellows, and more especially with those engaged in different work from ourselves. The hermit of student days rarely becomes a "good mixer" in later life. Secondly, we may read. The reading of novels has its value, but we should aim at something more. At least half an hour should be taken out of a solid busy day for good and disinterested reading; and he personally had found profit in studying the lives of some of the world figures in medicine and in the study of the classics. "Many of the ideas we think new," said Dr. Beath, "we shall find strangely old." The third method is travel—in many ways the most valuable in freeing the medical man from professional rust and parochial outlook. The student and medical graduate should see as much as possible of other countries, different scenery, different modes of life, habits, and customs, different art and architecture, and also of medical work in other places.

Leeds Public Dispensary.—Last week Dr. A. Hawkyard, Lord Mayor of Leeds, opened a new children's ward at the *Leeds Public Dispensary. There are ten cots and* six beds, and the cost has been £2500.

OBITUARY

SIR MARRIOTT COOKE, K.B.E., M.B. Lond.

Sir Marriott Cooke, whose death occurred in London on Oct. 17th, was nearing his 80th birthday. Public service for sufferers from mental disorder extending over a period of 56 years entitles him to be regarded as a main link between mid-Victorian psychiatry and present-day ideals as embodied in the Mental Treatment Act.

SIR MARRIOTT COOKE.

[*Photograph by H. Van der Weyde.*

Edward Marriott Cooke was elder child of Henry Edward Cooke of Harrow-on-the-Hill. He was educated privately at Southampton and at Cholmeley's School, Highgate, entering King's College as a resident student and completing his medical work at King's College Hospital. He held the post of resident accoucheur while reading for the primary Fellowship and the final M.B. Lond., and it was rather for the opportunity of prolonged study than because he was specially drawn to psychiatry that he went in 1873 as assistant to the Worcester Mental Hospital at Powick, where his chief was Dr. James Sherlock, a man of high medical and administrative attainment. He joined the Medico-Psychological Association at a time when Crichton Browne was president, Maudsley and Clouston the editors of its journal, and in this atmosphere his interest in the welfare of the insane awoke. Powick then numbered 669 patients, and there was not a single attendant or nurse on continuous duty during the night, a situation which impressed Cooke when as deputy he was called upon to act as superintendent during the illness of his chief. He had occasion too to visit other mental hospitals to collect information on behalf of his committee. His stay at Powick was not continuous, for in 1877, on the retirement of Dr. J. W. Burman, he was appointed to the charge of the Wilts County Mental Hospital at Devizes, where he stayed for four years, and was instrumental in setting apart a ward for sick and infirm cases under the charge of competent nurses. Returning to Powick in 1881, on Dr. Sherlock's death, he was occupied for 17 years in thinking out and effecting improvements in a hospital whose accommodation grew from 770 to 1100 beds during his term of service. Here again he was effective in separating acute, intelligent, and curable patients from the residuum of chronic mental invalids, and he saw the hospital's death-rate reduced nearly to six per cent. He felt strongly about the value of occupational therapy and claimed that fully seven per cent. of his patients were usefully employed in one way or another. During his time many cottages were built on the estate for married male members of the staff. His services were recognised in a signal way, for the committee of visitors on their own initiative decided to increase his salary by £300.

It was in January, 1898, on the death of Dr. J. A. Wallis, that Cooke joined the Lunacy Commission when Earl Waldegrave was chairman. He was not an innovator; he preferred to abide by well-tried measures, and his work is merged in the Board's corporate activities. Benevolently sceptical of new suggestions he was always ready to encourage their trial. As Commissioner he read every letter addressed to him from patients, and on his visits of inspection he gave them full opportunity to ventilate grievances. When war came in 1914 and Cooke was 62 years old, his services were lent whole-time to the War Office, and with one of his colleagues he developed a scheme under which 24 hospitals with 31,000 beds were placed at the disposal of sick and wounded soldiers, of whom some 480,000 were treated there; that is, one-sixth of the total number from all fronts. For a while he acted as medical referee at Scotland Yard in doubtful internment cases. From 1916 to 1918 he was chairman of the Board during the absence of Sir William Byrne in Ireland, being created K.B.E. at the end of this period. On his resignation in 1921 he was appointed an honorary Commissioner, continuing to attend meetings of the Board right up to the coming into force of the Mental Treatment Act.

Little record of Cooke's work exists on paper. Although a regular reader of medical journals, writing was always an effort to him. He absorbed facts slowly and deliberately, but once absorbed he held them and their underlying principles with tenacity. His official writings are conspicuous for lucidity and logical coherence, with a total absence of exaggeration. He had a commanding presence, described by his friend and colleague, Sir Hubert Bond, in the following words: "Erect and of somewhat military bearing and carriage, he looked more than his real height; dark, nearly black hair; healthy, rather swarthy complexion; strongly marked eyebrows, piercingly dark eyes which could and did at times give a flash which was a warning that it might ill betide one who would venture on liberties with him; attractive rich voice—he was obviously one upon whom responsibility would sit well."

Sir Marriott Cooke married in 1879 Mary Anne Henrietta Cecil, fourth daughter of Sir George Brooke-Pechell, Bt., of Alton House, an accomplished pianist and singer, whose gentleness and charm helped to mitigate the asperities of asylum life. Lady Cooke died in 1927 leaving no issue.

RICHARD WHYTOCK LESLIE, M.D., LL.D. R.U.I.

Dr. R. W. Leslie, who died on Sept. 22nd in Belfast after a short illness, was born in 1862 in County Tyrone, a son of the manse, his father being the Rev. J. K. Leslie, of Cookstown. He was educated at the Royal School, Raphoe, and took the early part of his medical course at Queen's College, Galway, and the latter part at Queen's College, Belfast, graduating as M.D. in the old Royal University of Ireland in 1887. Settling down in Belfast he quickly took an outstanding position in the medical profession, and established a truly surprising record of social service in branches of public life. For many years he was physician to the Ulster Hospital for Children and Women. On the establishment in 1894 of the Campbell College he was elected physician to this large boarding-school, and here he gained the affection and regard of successive generations of boys. In 1909 he was vice-president of the Section of Diseases of Children at the British Medical Association meeting, and in 1919 was chairman of the Belfast Division. Having given much time and interest to the affairs of the B.M.A., he was pleased at being elected to the Council of the Association in 1923, and attended the meetings of this body in London with regularity. In 1912 he was chosen president of the Ulster Medical Society.

Intensely interested in educational affairs he obtained a practical outlet for his views as a member of the Senate of the Royal University of Ireland, and on its dissolution he was made an honorary LL.D. He was later appointed a senator of the Queen's University of Belfast, where he took an active interest in every phase of university life and gave his services on many committees. Yet another body with which he was actively associated was the Order of St. John of Jerusalem. For many years he conducted ambulance classes in the Campbell College and in his own part of Belfast, and for his services to the Order, particularly during the war, he was created a Knight of Grace and an Honorary Associate. Dr. Leslie also took a keen interest in the Masonic Order, in which he held high office, and he was one of the founders and first masters of the University Lodge.

"Richard Leslie," writes a medical friend, "was a man of great charm, broad views, and wide culture, a polished speaker and a wise counsellor, a noted mediator and peacemaker among his brethren, a skilful physician beloved by patients and colleagues."

JOHN ROBERT DAVISON, M.D. R.U.I.

Dr. J. R. Davison died at his home in Belfast on Sept. 17th in his seventy-first year. He was born in Leeds and educated at Toleraine Academical Institution and Queen's College, Belfast, graduating in arts in 1880 and as M.D. in 1887. As a young man he represented Ireland on eight occasions in association football; later in life he took up bowls, and again became an international. One of the most familiar figures in Belfast, he rose in medicine, as in sport, to a leading position among the practitioners of the city. He was a man of much ability, and held the honour of his profession in high regard.

THE death of Mrs. MARGARET LAMONT, M.D. (née Traill Christie), at Port Said last August, brought to an end a life of very varied experience. After a successful student career at Bedford College and the London (Royal Free Hospital) School of Medicine for Women, she graduated in 1895. Next year she went to India on special plague duty and later took charge of the Dufferin Hospital, at Calcutta, where she subsequently married. After further wanderings Dr. Lamont settled in Shanghai and recently her home was in Durban where her two married daughters are now living. The subject of medical missions always occupied a chief place in her interests, and it was when travelling for this cause that she was overtaken by her last illness.

MEDICAL GRADUATES FOR PARLIAMENT.

TWENTY-THREE medical men and one medical woman have faced a contested election this week. We regret the inadvertent omission from the list in our last issue of the name of Dr. G. V. Worthington, standing as a National Labour for Gloucester (Forest of Dean). Following is a list of candidates, successful and unsuccessful, so far as the results were known at the time of going to press. As already announced, Prof. T. Sinclair (Queen's University, Belfast) and Dr. J. H. Morris-Jones, Denbigh (Denbigh), were elected without opposition. We must defer until our next issue the usual voting analysis.

ELECTED.

Name.	Constituency.	Party.
Dr. J. Douglas Cooke ..	Hammersmith (South) ..	C.
†Dr. Walter E. Elliot ..	Glasgow (Kelvingrove)	C.
†Dr. F. E. Fremantle ..	Herts (St. Albans) ..	C.
†Mr. H. C. Haslam ..	Lincolnshire (Horncastle) ..	C.
Dr. G. B. Hillman ..	Wakefield	C.
Dr. A. B. Howitt ..	Reading	C.
†Dr. J. Hunter	Dumfriesshire ..	L.
‡Sir Henry Jackson ..	Wandsworth (Central) ..	C.
Dr. J. W. Leech ..	Newcastle-on-Tyne (W.)	C.
†Dr. J. H. Morris-Jones	Denbigh (Denbigh) ..	Nat. L.
Dr. W. J. O'Donovan ..	Stepney (Mile End) ..	C.
†Dr. Alfred Salter ..	Bermondsey (West) ..	Lab.
†Prof. T. Sinclair ..	Queen's Univ., Belfast ..	C.
†Dr. J. H. Williams ..	Carmarthen (Llanelly)	Lab.
Dr. G. V. Worthington	Gloucester (Forest of Dean) ..	Nat. Lab.

NOT ELECTED.

Name.	Constituency.	Party.
†Rt. Hon. C. Addison .	Wilts (Swindon) ..	Lab.
Dr. F. G. Bushnell ..	Somerset (Taunton) ..	Lab.
Dr. C. R. Cooke-Taylor	Camberwell (Dulwich) ..	L.
†Dr. R. Forgan.. ..	Renfrew (West).. ..	N.P.
‡Dr. L. Haden Guest ..	Bucks (Wycombe) ..	Lab.
†Mr. Somerville Hastings	Reading	Lab.
Dr. R. A. Lyster ..	Hants (Winchester) ..	Lab.
Miss Esther Rickards .	Paddington (North) ..	Lab.
†Dr. Drummond Shiels ..	Edinburgh (East) ..	Lab.
Dr. Russell Thomas ..	Ilford	L.

The sign † indicates membership of the last House of Commons. The sign ‡ of any previous Parliament.

THE COLYER PRIZE.

THE first award of this prize will be made in July, 1932. It was founded by the Royal Society of Medicine in June, 1926, to commemorate the 25 years' service of Sir Frank Colyer as honorary curator of the odontological museum. The accumulated income of this fund may be used every third year for the purpose of awarding a prize for the best original work in dental science completed, during the previous five years, by a dental surgeon educated at any duly recognised dental school in Great Britain or Northern Ireland, who has not been qualified to practise more than five years at the date of the award. The prize committee is composed of the president of the society, the curator of the odontological museum, and two representatives to be appointed by the council of the Section of Odontology. The committee have power to withhold the prize if they consider that no work has been submitted of sufficient merit to justify its award, and to arrange instead for a lecture, or lectures, upon some subject related to the odontological museum, according the lecturer an honorarium from the fund. Applications from candidates for the first award should be submitted to the prize committee (1, Wimpole-street, London, W.1) not later than March 31st, 1932, together with a general account of researches, completed and in progress.

MEDICAL NEWS

University of Cambridge.

On Oct. 23rd the following degrees were conferred:—

M.D.—G. P. Chandler, J. T. Irving, F. G. Spear, and C. E. Kellett.

M.B. & B.Chir.—O. J. C. Cotton, D. B. McGavin, J. H. Richmond, C. P. K. Toland, A. S. Hall, J. K. Willson-Pepper, H. E. W. Roberton, and T. G. Reah.

M.B.—F. G. Winterton.

B.Chir.—T. C. Stamp and D. R. Goodfellow.

University of London.

At a meeting of the Senate on Oct. 21st, it was announced that, owing to ill-health, Lord Beauchamp, had resigned the Chancellorship of the University. The Senate recorded their deep regret that he had found it necessary to take this step and their high appreciation of the services which he had rendered to the University during his tenure of office.

Dr. R. J. V. Pulvertaft was appointed to a University Readership in Pathology tenable at Westminster Hospital Medical School. Dr. Pulvertaft is at present pathologist to the medical and surgical unit at St. Thomas's Hospital.

The title of Reader in Physiology was conferred on Mrs. Nora Edkins, D.Sc., in respect of the post held by her at Bedford College.

It is announced that Lord Moynihan has accepted nomination by the Council of the University of London Graduates' Association for the office of Chancellor.

University of Edinburgh.

On Oct. 24th the following diplomas were conferred:—

Diploma in Psychiatry.—*W. H. Gillespie.

Diploma in Public Health.—*P. C. Datta, Jessie Griffin, L. J. Howie, D. F. Mackenzie, Margaret I. M'Kinlay, Jessie C. B. Sym, and *B. O. Wilkin.

* In absentia.

Royal College of Surgeons of Edinburgh.

At the annual meeting of the College on Oct. 21st, the following office-bearers were elected for the ensuing year: President: Mr. J. W. Dowden; Vice-President: Dr. J. H. Ferguson; Secretary and Treasurer: Mr. J. W. Struthers. Council: Mr. Henry Wade, Mr. W. J. Stuart, Dr. A. H. H. Sinclair, Mr. G. L. Chiene, Dr. J. S. Fraser, and Mr. J. M. Graham. Representative on the General Medical Council: Mr. Alexander Miles. Convener of Museum Committee: Dr. A. Logan Turner. Librarian: Mr. D. M. Greig.

At a meeting of the College on Oct. 20th, Dr. James Haig Ferguson, the President, in the chair, the following 34 successful candidates (out of 98 entered) who passed the requisite examinations between July 9th and 18th were admitted to the Fellowship:—

Robert Lorimer Beveridge, M.B. Edin.; Raymond Edward Bridge, M.B. Otago; Freeman Albert Brockenshire, M.B. Toronto; Julius Brown, M.B. Edin.; Arnold Leslie Bryant, M.B. Sydney; George Gordon Campbell, M.B. Edin.; Edward Charles Chitty, M.B. Aberd.; Joseph Crowther, M.R.C.S. Eng.; Alexander Dickson, M.B. Edin.; Frank Gerrard D'Souza, M.B. Bomb.; Gordon Bruce Flint, M.D. Edin.; Gwyneth Griffith, M.D. Liverp.; John Gordon Harrower, M.B. Glasg.; Arthur Wesley Stanley Hay, M.D. Manitoba, Canada; Herbert Bruce Hough, M.B. Toronto; Charles Arundel Hutchinson, M.R.C.S. Eng.; Govind Vasudev Joglekar, M.B. Bomb.; Henry Andrew Kidd, M.R.C.S. Eng.; Eric Walter Kyle, M.B. Melb.; Robert Baird McClure, M.B. Toronto; William McElmoyle, M.D. Manitoba; John Archibald McLauchlan, M.B. Edin.; George Hay Marshall, M.B. Edin.; D'Arcy Harper Moir, M.B. New Zeal.; Richard Edward Montagu Pilcher, M.R.C.S. Eng.; Redvers William Scanlon, M.R.C.S. Eng.; Rama Shanker, M.B. Punjab; Angus Dalrymple Smith, M.B. Edin.; Algar Gerald Sweetapple, M.B. Sydney; Geoffrey Gerald Cheetham Taylor, M.B. Durh.; Vivian Johnson Morcom Taylor, M.B. Liverp.; Mukund Balvantrai Thakore, M.B. Bomb.; John Vaughan-Bradley, M.B. Camb.; and Albert Willard McCollum White, M.B. Toronto.

Ladies' Medical Golfing Society.

The Autumn Meeting was held at Northwood on Oct. 23rd. The results were as follows:—Cecil Leitch Cup (given in aid of the National Playing Fields Association) best net score: Miss B. Roberts Harris, who also won the scratch prize and the 1st division handicap with a score of 82 −6 = 76. Captain's Prize: Best aggregate score spring and autumn meetings, Miss A. Bristow, 155. 1st Div. Handicap: 2nd prize, Miss A. Bristow, 91 −12 = 79. 2nd Div. Handicap: Mrs. Oldershaw, after a tie with Mrs. Palmer and Miss S. Dudgeon. 3rd Div. Handicap: 1st, Mrs. Duncan Fitzwilliams; 2nd, Miss Phillips, after a tie with Mrs. Eddomen. Greensomes *v.* Bogey: 1st, Miss Dix Perkins and Miss B. Roberts Harris, 2 up; 2nd, Mrs. Gordon Holmes and Mrs. Russell-Smith, tied with Miss S. Dudgeon and Miss A. Bristow, all square.

Pharmaceutical Society of Great Britain.

At a meeting to be held in the Society's House, 17, Bloomsbury-square, London, W.C., at 8.30 P.M. on Tuesday, Nov. 10th, Sir William Willcox will give an address on The Practical Relationship of Bacteriology to Pharmacy and its Influence on the Curriculum.

Royal Medico-Psychological Association.

The twelfth Maudsley lecture will be delivered by Sir Hubert Bond, a senior commissioner of the Board of Control, in the Great Hall of the British Medical Association House, Tavistock-square, London, W.C., on Tuesday, Nov. 24th, at 3 P.M. The title is, Testimonied in his own Bringing-forth. Admission without ticket.

Welsh National School of Medicine.

Prof. A. W. Sheen has been appointed the first provost of this school under the new charter by which it has become a separate school of the University of Wales. He has hitherto been dean.

Joint Tuberculosis Council.

A meeting of this council was held in London on Oct. 17th. Among other matters the question of collective research was discussed. The essentially individualistic nature of most research was emphasised, and the difficulty of persuading those able and ready to carry it out to follow lines suggested by any committee. At a luncheon subsequently given by Dr. Lissant Cox, chairman of the council, Sir George Newman said that tuberculosis provided an excellent example of a successful organisation campaign; it was the best instance he knew of successful State intervention, for the mortality of pulmonary tuberculosis had been reduced by 75 per cent. in 75 years, and deaths from non-pulmonary tuberculosis had been halved since 1918. The four pillars of the tuberculosis campaign were the general practitioner, the dispensary, the institution, and the public health service. Coöperation of all these was essential if success was to continue. The teaching of tuberculosis to students he regarded with some misgiving; we must beware of over-confidence in the hour of triumph and spare no effort to maintain all-round efficiency. Dr. Charles Porter gave some details of recent steps to attack tuberculosis in Chicago; he explained the mobile artificial pneumothorax arrangements, and the forcible hospitalisation of certain infective persons. Dr. Egbert Morland expressed a fear that tuberculosis might fade away before the arrangements to attack it were really ready.

Hospital Developments.

Members of the Royal family were busily engaged last week in activities connected with hospitals. On Tuesday the Marchioness of Cambridge opened extensions of the Richmond (Surrey) Royal Hospital which have cost £15,000. The buildings, which were dedicated by the Bishop of Kingston-on-Thames, consist of a four-floored block and include a new X ray department and a new theatre served by an electric lift. There are eight extra beds for patients needing special observation, and the facilities for pathological work have been greatly improved.—On Wednesday the Prince of Wales attended the Colchester oyster feast which this year was associated with an effort on behalf of the Essex County Hospital. In his speech the Prince made an appeal for the balance required for a new nurses' home, and the collection at the table amounted to £277.—On Thursday the Duke of York opened the first wing of the permanent buildings of the Manor House Hospital, Golders Green where the Industrial Orthopædic Society provides treatment for injured industrial workers. This is the first of a group of seven buildings, the total cost of which will be about £250,000. Six of them will contain wards and a theatre; the seventh will be the administrative block. The patients who are at present housed in temporary buildings, erected during the war, will be transferred as the new wards are ready. The wing opened on Thursday has accommodation for 46 patients. The open wards are provided with runner curtains which can be drawn at night to give each patient privacy, and a switch enables a patient to call a night-nurse, the bed being indicated by a red light. The building fund was launched in 1920 with a sum of £32; by June, 1931, it had reached £34,500.—On the same day the Duchess of York opened the new maternity department at the Radcliffe Infirmary, Oxford, which has cost £40,000, and is the gift of Sir William Morris. There are two main wards, each with 12 beds; there are also single and two-bed wards, and rooms for paying patients, with open-air balconies. Above the main wards are isolation rooms and a suite of labour wards.

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

Tuesday, Nov. 3rd.—5 P.M., Orthopædics. (Cases at 4.30 P.M.) Mr. Eric I. Lloyd: Infantile Coxa Vara. Mr. T. K. Lyle: Cervical Rib. Mr. D. McCrae Aitken: Case for Diagnosis. Mr. Alan H. Todd: Madelung's Deformity with Abnormal Radio Ulna Joint. Mr. C. Lambrinudi: End Results of Foot Drop Operation. Mr. B. H. Burns: Two Cases of Spondylolisthesis. Mr. E. P. Brockman: Deformity of Wrist. Mr. Paul Bernard Roth: Severe Fracture of the Pelvis. Other cases will be shown. 8 P.M., Pathology. Laboratory Meeting at the London School of Hygiene and Tropical Medicine, Keppel-street, London, W.C. Demonstrations: J. T. Duncan: Blastomycotic Infection in Man. G. S. Wilson: Dye-containing media in the Differentiation of the Brucella Group. W. R. Wooldridge: Reducing Activities of Bacterial Cells as shown by the Methylene-blue Technique. H. M. Schwabacher: Isolation of Tubercle Bacilli from the Blood. Papers: M. E. Delafield: Changes in Blood Constituents in Response to Injection of Bacteria. R. Lovell: The Presence and Significance of Normal Agglutinins in Domestic Animals. W. W. C. Topley and J. Wilson: Immunity to Pasteurella Infection in Mice.

Wednesday.—5 P.M., History of Medicine. Mr. A. F. MacCallan will read a paper by Dr. Meyerhof (Cairo) on A Short History of Ophthalmia during the Egyptian Campaigns of 1798–1807. Dr. W. R. Bett for Dr. K. J. Franklin: The Work of Richard Lower (1631–1691). A Tercentenary Survey. Ophthalmology. Members of this Section are invited to take part in the discussion. 8.30 P.M., Surgery. Discussion: Treatment of Acute Osteomyelitis. Opener: Mr. Gwynne Williams. Followed by Mr. Eric I. Lloyd, Mr. W. H. Ogilvie, and others.

Thursday.—8.30 P.M., Tropical Diseases and Parasitology. Papers: Dr. P. Manson-Bahr: Amœbic Abscess of the Liver: Its Diagnosis and Treatment. A Clinical Study. Mr. T. P. Kilner: Operative Procedures in Amœbic Abscess of the Liver, based on Recent Experiences. Medicine and Surgery. Members of these Sections are specially invited to attend.

Friday.—10.30 A.M., Otology. (Cases at 9.30 A.M.) Presidential Address: Mr. Norman Patterson: The Training of an Otolaryngologist. Papers: Mr. E. Watson-Williams: Treatment of Suppurative Meningitis, with Cases. Dr. Dan McKenzie: Some Graphs Illustrating Otosclerosis. Cases and specimens will be shown. 5 P.M., Laryngology. (Cases at 4 P.M.) 8.30 P.M., Anæsthetics. Discussion: Anæsthesia for Diathermy and Endoscopy. Openers: Dr. H. W. Featherstone and Mr. J. D. Morgan. Other speakers will take part. Laryngology. Members of this Section are invited to attend.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.

Tuesday, Nov. 3rd.—5 P.M., Dr. J. S. Fairbairn: Medical and Psychological Aspects of Gynæcology (Bradshaw Lecture).

Thursday.—5 P.M., Dr. James Collier: Development of Neurology from the Nineteenth Century. (First FitzPatrick Lecture.)

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

Monday, Nov. 2nd.—5 P.M., Mr. C. P. G. Wakeley: Secondary Tumours of the Bone.

Friday.—5 P.M., Sir Arthur Keith: Pathology of Hydrocephaly.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

Monday, Nov. 2nd.—10 A.M., Gynæcological Wards; Genito-urinary Operations; Skin Department. 11 A.M., Surgical Wards. 2 P.M., Surgical Wards; Medical, Surgical, Eye, and Gynæcological Out-patients.

Tuesday.—9.30 A.M., Operations. 10 A.M., Medical Ward Demonstration; Dental Department. 11 A.M., Throat Operations. 11.30 A.M., Surgical Demonstration. 2 P.M., Operations; Medical, Surgical, and Throat Out-patients.

Wednesday.—10 A.M., Medical Wards; Children's Medical Out-patients. 2 P.M., Medical, Surgical, and Eye Out-patients. 2.30 P.M., Gynæcological Operations. 4.45 P.M., Venereal Diseases Demonstration.

Thursday.—10 A.M., Neurological Department. 11.30 A.M., Fracture Demonstration. 2 P.M., Medical, Surgical, Eye, and Genito-urinary Out-patients. 2.30 P.M., Operations.

Friday.—10 A.M., Medical Wards, Skin Department, Dental Department. 2 P.M.; Medical, Surgical, and Throat Out-patients. 2.30 P.M., Operations.

Saturday.—9 A.M., Throat Operations. 10 A.M., Medical Wards, Surgical Out-patients; Children's Medical Out-patients.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL, University-street, W.C.

Tuesday, Nov. 3rd.—5.15 P.M., Prof. C. R. Harington: Chemistry and Functions of the Thyroid Gland.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL Denmark-hill, S.E.

Thursday, Nov 5th.—9 P.M., Dr. R. D. Lawrence: Difficulties of Insulin Treatment.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.

Wednesday, Nov. 4th.—4 P.M., Dr. L. E. Claremont: The Dental Health of the Citizen.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

Monday, Nov. 2nd, to Saturday, Nov. 6th.—Gordon Hospital, Vauxhall Bridge-road, S.W. Afternoon course in Proctology.—Royal Waterloo Hospital, Waterloo-road, S.E. All-day post-graduate course in medicine, surgery, and gynæcology. Demonstrations and lectures.—West End Hospital for Nervous Diseases, Welbeck-street, W. Course in Neurology. Daily at [illegible] P.M.—Medical Society of London, 11, Chandos-street, Cavendish-square, W. Free lecture on Wed. at 4 P.M. by Dr. J. W. McNee, on Nephritis.—In connexion with the M.R.C.P. Course of lectures: Mon. at 8.30 P.M., Dr. Donald Hunter: Pathology and Clinical Aspects of Diseases of Arteries. Wed. at 8.30 *P.M., Dr. Donald Hunter*: Asbestos, Silicosis: Prevention of Disease in Industry.—Bolingbroke Hospital, Wandsworth Common, S.W. Free post-graduate demonstration in Dermatology by Dr. Haldin-Davis on Mon. at 2.30 P.M.—Cancer Hospital, Fulham-road, S.W. Free post-graduate demonstration in Out-patient Department by Mr. Lawrence Abel on Fri. at 2 P.M. Further particulars from the Fellowship of Medicine.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

Tuesday, Nov. 3rd.—5 P.M., Dr. H. MacCormac: Diseases due to Animal Parasites.

Thursday.—5 P.M., Dr. W. J. O'Donovan: Occupational Dermatitis.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

Friday, Nov. 6th.—4 P.M., Mr. C. Gill-Carey: Foreign Bodies in the Food and Air Passages.

ST. MARK'S HOSPITAL, City-road, E.C.

Thursday, Nov. 5th.—4.30 P.M., Mr. W. B. Gabriel: The Elucidation of Rectal Symptoms. (2) Discharge.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.

Wednesday, Nov. 4th.—4 P.M., Sir Harold Gillies: Plastic Operations (Cinema and Lantern Pictures).

NATIONAL HOSPITAL, Queen-square, W.C.

Monday, Nov. 2nd.—2 P.M., Dr. Riddoch: Out-patient Clinic. 3.30 P.M., Mr. Leslie Paton: Papillœdema (1).

Tuesday.—2 P.M., Dr. Walshe: Out-patient Clinic. 3.30 P.M., Mr. Armour: The Surgery of the Posterior fossa (1).

Wednesday.—2 P.M., Dr. Martin: Out-patient Clinic.

Thursday.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Dr. Carmichael: Some Problems of Sensation (1).

Friday.—2 P.M., Dr. Adie: Out-patient Clinic. 3.30 P.M., Dr. Bernard Hart: Some Disorders of Memory (1).

ST. PAUL'S HOSPITAL, Endell-street, W.C.

Wednesday, Nov. 4th.—4.30 P.M., Mr. Stanford Cade: Epithelioma of the Penis.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James' Hospital, Ouseley-road, Balham, S.W.

Wednesday, Nov. 4th.—9 P.M., Mr. Norman C. Lake: Some Practical Applications of the Surgery of the Sympathetic Nervous System.

MANCHESTER ROYAL INFIRMARY.

Tuesday, Nov. 3rd.—4.15 P.M., Mr. J. Morley: Value of Palliative Operations in Carcinoma of the Alimentary Tract.

Friday.—4.15 P.M., Dr. A. Ramsbottom: Demonstration of Medical Cases.

ANCOATS HOSPITAL, Ancoats, Manchester.

Thursday, Nov. 5th.—11 A.M., Dr. N. Kletz: Clinical Demonstration. 4.15 P.M., Mr. P. G. McEvedy: When to Operate in Gastric and Duodenal Ulceration.

MANCHESTER VICTORIA MEMORIAL JEWISH HOSPITAL, Elizabeth-street.

Wednesday, Nov. 4th.—4.30 P.M., Mr. I. Blain: Surgery of the Gall Bladder.

MANCHESTER HOSPITAL FOR CONSUMPTION, Hardman-street, *Deansgate*.

Wednesday, Nov. 4th.—4.30 P.M., Dr. H. R. Clarke: Diagnosis and Treatment of Early Pulmonary Tuberculosis.

UNIVERSITY OF SHEFFIELD.

Friday, Nov. 6th.—(At the Royal Hospital.) Mr. H. B. Yates: Malignant Disease of the Colon and Rectum.

ROYAL INFIRMARY, Glasgow.

Wednesday, Nov. 4th.—4.15 P.M., Prof. W. K. Hunter: Medical Cases.

NOTES, COMMENTS, AND ABSTRACTS

THE HEALTH OF MERCHANT SEAMEN IN 1929.

By Fleet-Surgeon W. E. Home.

The annual Board of Trade return for 1929 [1] states the deaths of seamen of the mercantile marine as reported to the Board in that year. The figures are so uncertain that I shall limit consideration to British seamen, of whom there were in the "first crews" of ships, 164,200. These men do not, of course, serve, all of them, throughout the whole year. What then was their average daily ration strength or complement? This is not known, but in default we may take the 81 per cent. of first crews, found on board on the date of the last census of seamen (March 31st, 1926). That will give us 133,000 as the average number daily on board, amongst whom were reported the 755 deaths, 324 from disease and 431 from violence (accidents, suicide, &c.), each number rather less than in 1928.

SPECIAL CONDITIONS IN THE SERVICE.

There is no discussion of the figures, but the return this year is more interesting than its predecessors, as the ages at which the deaths occurred are all for the first time stated; also, but without the ages, the deaths severally among sailors, engine-room staff, stewards and others. If any use is to be made of these figures it must be by comparison with those shown by other occupational groups, when we at once meet the difficulty that deaths vary much with age, that all occupations have their special age-distributions, and that differing death-rates may be due to varying age rather than varying risk. In other words a standard death-rate is needed as the touchstone, and the widest based standard death-rate of any is that of "all occupied and retired civilian males," the group from which the Registrar-General took his comparative mortality figure of 1000 (Decennial Supplement for 1921, Part II., Occupational Mortality, 1927, p. 2). This group he formed to give the fairest picture of the average health of people in industry in England and Wales, there being excluded those males so afflicted from youth as never to have been fit for employment: it comprised some 12 million yearly of males at ages from 20–65, but figures were given for other ages too. The merchant marine, as well as the Army and Navy with which we shall specially wish to compare them, include few men over 45, so it will be necessary to calculate death-rates, not for 20–65, but for 16–45—no very difficult matter, the tables being so clear. Table I. shows the standard death-rate for "all occupied and retired civilian males, aged 16–45," as in 1921–23. The first column shows the ages, the second the number at risk at each age-period, the third the proportion those at the ages stated bear (per 1000) to the total, then come the deaths that occurred (in 1921–23), at the ages stated, first from disease, then from violence, then the totals, after these come the death-rates in the same order. Afterwards appear the deaths and death-rates from pulmonary tubercle and from pneumonia, two important diseases for which figures of deaths are given in all the statistics. The horizontal lines of figures need little remark, the first covers the four years 16–20, the second, the five years 20–25, the two next each take in 10 years, and to show their greater weight are given more space, while the last sums up or averages the others. For comparison Table II. shows how another group, "General Labourers," have death-rates differing from the standard, indeed much higher. While a population, with their age-distribution and standard death-rate, would have had 4·03 for its death-rate, their was in fact 6·30, perhaps because they lived and worked in less healthy conditions, more exposed to the weather or worse housed; thus too must we account for their higher death-rates for tubercle of lung and from pneumonia.

COMPARISON WITH ARMY AND NAVY.

When we go on to compare the death-rates of the merchant service with those of the Army and the Navy, we must not forget that we shall be comparing these in 1929 with the standard of 1921–23. One hopes that in six or seven years someone else, perhaps even the R.-G., will be comparing the service statistics for those years with the by then available standard rates for 1930–32.

The figures for the merchant marine in Table III. require a particular adjustment. Of the 164,200 men counted in the first crews of 1929, we take 133,000 (81 per cent., as has been said), as the number probably continuously employed, at all ages. To find the numbers by ages from 16–45, we must go back to the 1921 census of seamen, in which ages were classified as in this 1929 return, not so fancifully (–18; –24; –34; –49) as in the census of 1926. Per 1000 for our four groups the proportions in 1921 was 112·7, 196·2, 320·7, 207·7; applying these to 133,000 (the probable daily average in 1929) we get the figures of the second column of Table III. Next we find that the standard death-rates for the merchant service, obtained from Table I., would have been: from disease 3·81, from violence 0·46, total 4·27. Then we copy from the return the deaths which occurred at the ages, and from them calculate the actual death-rates which emerge: from disease 1·6, from violence 2·74, total 4·38—that from disease about a half, from violence about six times the standard. Death-rates for pulmonary tubercle are about a sixth, from pneumonia about half the standard.

Ages for the Army are only available out of India, so men and deaths in India are excluded from Table IV., which like Table V. (Navy) is prepared quite similarly to Table III., except that only the gross totals of

TABLE I.—STANDARD MORTALITY. MALES, AGES 16 TO 45.
All civilian males, occupied and retired (R.-G. Decennial Supplement, 1921, p. 2).

Ages.	Total in group.	Per 1000.	Deaths at ages.			D.R. at ages.			Tubercle, pulm.		Pneumonia.	
			Disease.	Violence.	Total.	Dis.	Viol.	All.	No.	D.R.	No.	D.R.
16–20	3,725,301	165	7,774	1,440	9,214	2·08	0·39	2·47	2,562	0·69	768	0·21
20–25	4,022,073	178	12,440	1,711	14,151	3·09	0·43	3·52	5,480	1·36	1,141	0·28
25–35	7,542,300	334	26,910	3,201	30,111	3·57	0·42	3·99	10,014	1·33	3,054	0·40
35–45	7,274,280	323	42,199	4,296	46,495	5·80	0·59	6·39	11,623	1·60	5,226	0·72
16–45	22,563,954	1,000	89,323	10,648	99,971	3·96	0·47	4·43	29,679	1·31	10,189	0·45

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[1] Return of Shipping Casualties to and Deaths on Vessels registered in the U.K. in the year ending Dec. 31st, 1929. H.M. Stationery Office. 1931. 6*d*.

TABLE II.—R.-G., GROUP 164, GENERAL AND UNDEFINED LABOURERS (P. 95.)

Ages.	Total in group.	Per 1000.	Standard.			Actual.			Tubercle, pulmonary.				Pneumonia.			
			Cases.			Cases.			Standard.		Actual.		Standard.		Actual.	
			Dis.	Viol.	Total.	Dis.	Viol.	Total.	Cases.	Rate.	Cases.	Rate.	Cases.	Rate.	Cases.	Rate.
16–20	163,704	130	341	63	404	601	87	688	113		203	1·24	34		55	0·34
20–25	243,861	194	753	105	858	1,075	118	1,193	382		479	1 96	73		110	0·45
25–35	426,726	340	1,523	179	1,702	2,345	211	2,556	567		879	2·06	171		276	0·65
35–45	421,419	336	2,444	248	2,692	3,890	279	4,169	674		1,162	2·76	304		507	1·20
16–45	1,255,713	1,000	5,061	595	5,656	7,911	695	8,606	1,736	1·38	2,723	2·17	582	0·46	948	0·76
Death-rates ..	..		4·03	0·47	4·5	6·30	0·55	6·85								

TABLE III.—MERCHANT MARINE. 1929.

Ages.	Number at risk.	Proportion.	Deaths from disease and violence.									Tubercle, pulmonary.				Pneumonia.			
			At standard rates.			Actual.													
			Deaths.			Deaths.			Death-rates.			Standard.		Actual.		Standard.		Actual.	
			Dis.	Viol.	Total	Dis.	Viol.	Total	Dis.	Viol.	Total	Rate.	Deaths	Deaths	Rate.	Rate.	Deaths	Deaths	Rate.
16–20	14,992	135	31·2	5·8	37·0	5	39	44	0·3	2 6	2·9		10				3		
20–25	26,095	234	80·6	11·2	91·8	25	59	84	0 96	2·26	3 22		35	2	0·07		8	1	0·04
25–35	42,602	383	152·0	18·0	170·0	76	126	202	1·8	2·9	4·7		57	11	0·26		17	10	0·23
35–45	27,050	248	160·0	16·0	176·0	77	81	158	2·8	2·9	5·7		44	6	0·22		20	12	0·43
16–45	111,339	1,000	424	51	475	183	305	488	1·61	2·71	4·38	1 32	146	19	0·17	0·42	47	23	0·20
Death-rates ..	..		3·81	0·46	4·27														

TABLE IV.—ARMY, NOT IN INDIA. 1929.

16–20	26,379	214	55	10	65								18				5·5		
20–25	57,482	466	178	25	203								78				16·0		
25–35	31,545	255	113	13	126								42				13·0		
35–45	7,642	62	44	5	49								12				5·0		
16–45	121,048	997	390	53	443	211	90	301	1·7	0·8	2·5	1·24	150	11	0·09	0·32	39·5	46	0·38
Death-rates ..	..		3·2	0·4	3·6														

TABLE V.—NAVY. 1929.

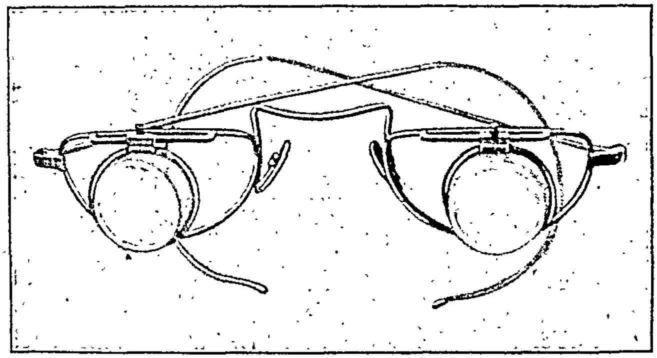
16–20	11,343	132	23·6	4·4	28								8				2·4		
20–25	23,813	276	73·6	10·3	84								32				6·0		
25–35	37,450	434	133·0	16·0	149								50				15·0		
35–45	13,590	158	79·0	8·0	87								22				10·0		
16–45	86,196	1,000	309	39	348	173	81	254	2·0	0·9	2·9	1·3	112	19	0·22	0·4	34·0	21	0·24
Death-rates ..	..		3·6	0·45	4·04														

TABLE VI.—STANDARD AND ACTUAL DEATH-RATES. MALES, AGES 16 TO 45.

Groups concerned.	Period of observation.	Mean age.	Standard.			Actual.			Phthisis.		Pneumonia.	
			Dis.	Viol.	Total.	Dis.	Viol.	Total.	Standard	Actual.	Standard	Actual.
All civilian males, O. and R...	1921–3	30	3·96	0·47	4·43	Do.	Do.	Do.	1·3	Do.	0·45	Do.
General labourers	1921–3	30	4·0	0·47	4·5	6·3	0·5	6·8	1·38	2·17	0·46	0·76
Merchant marine	1929	28	3·81	0·46	4·27	1·6	2·7	4·4	1·32	0·17	0·42	0·2
Army, not in India ..	1929	23	3·2	0·4	3 6	1·7	0·8	2·5	1·2	0·09	0·32	0·38
Navy	1929	26	3·6	0·45	4·04	2·0	0·9	2·9	1·3	0·22	0·4	0·24

BINOCULAR MAGNIFIERS.

We have received from Messrs. W. Watson & Sons, Ltd. (313, High Holborn, London, W.C.1), a pair of "Speera" Magnifier Spectacles which can be used for any kind of work of a minute character, and particularly for fine dissections, operations on delicate structures such as the eye or internal ear, and examination of skin eruptions. The lenses are achromatic, their combined use gives a stereoscopic effect, and they have a prismatic action which counteracts the necessity for convergence. They slide on guide-bars and can thus be adjusted accurately to differing interpupillary distance. The skeleton nature of the frame permits the wearer, when he likes, to see round the lenses instead of through them. The lenses are made in three powers, with focal lengths of 5, 7, and 10 inches, and corresponding magnification of 3·5, 2·5, and 1·75 diameters. The price is £2, complete in case.



Appointments

Garland, Hugh G., M.D. Leeds, M.R.C.P. Lond., has been appointed Medical Tutor, University of Leeds, and Medical Registrar, Leeds General Infirmary.

Herd, H., M.B., Ch.B. Edin., D.P.H., School Medical Officer to the City of Manchester Education Committee.

McDougall, S. R., M.B., Ch.B. Glasg., Certifying Surgeon under the Factory and Workshop Acts for Ulceby (Lincoln).

Miller, R. D., M.B., Ch.B. Edin., Assistant Honorary Physician, Hull Royal Infirmary.

Stoke Park Colony, Stapleton, Bristol: **Bates, R. M.**, F.R.C.S. Eng., Resident Medical Officer. **Norman, R. M.**, M.B., Ch.B. Bristol, Senior Assistant Medical Officer.

Vacancies

For further information refer to the Advertisement columns.

Aberdeen Royal Infirmary.—Asst. Gynæcologist.

All Saints' Hospital (for Genito-Urinary Diseases) 91, Finchley-road, N.W.—Hon. Surgical Registrar.

Ashton-under-Lyne District Infirmary.—H.S. At rate of £150.

Birmingham, Dudley-road Hospital.—Surgeon. £750.

Birmingham Mental Hospital.—Jun. Asst. M.O. £350.

Bradford Children's Hospital.—H.S. £120.

Brighton, Royal Alexandra Hospital for Sick Children.—H.P. £100.

Burton-on-Trent General Infirmary.—Sen. and Jun. H.S. £200 and £150 respectively.

Cambridge, Addenbrooke's Hospital.—Res. Anæsthetist and Emergency O. £130.

Cardiff, Royal Infirmary.—Two Hon. Gynæcologists.

Cardiff, Welsh National School of Medicine.—Secretary. £400.

Central London Throat, Nose, and Ear Hospital, Gray's Inn-road, W.C.—Assts. for Out-patient Dept. Also Res. H.S. At rate of £75.

Charing Cross Hospital, W.C.—Asst. Surgeon and Asst. Phys.

Chester, County Mental Hospital.—Jun. Asst. M.O. £350.

Children's Hospital Hampstead, College Crescent, Swiss Cottage, N.W.—Res. M.O. At rate of £100.

Cobham, Surrey, Schiff Home of Recovery.—Res. Surgeon. £200.

Connaught Hospital, Walthamstow, E.—Hon. Asst. Aural Surgeon.

Dorchester, Dorset Mental Hospital.—Deputy Med. Supt. £575.

Glasgow Corporation, P.H. Dept.—Sen. Asst. for Bacteriological Laboratory. £700.

Grocers' Company, Grocers' Hall, E.C.—Research Scholarships. Each £300.

Halifax Corporation's Isolation Hospital.—Res. M.O. £350.

Hertford, Hertfordshire Institution for Mental Defectives.—Med. Supt. £800.

Huddersfield County Borough.—Asst. School M.O. £500.

Ilford Borough.—Asst. M.O.H. £400.

Khartoum, Wellcome Tropical Research Laboratories.—Bacteriologist. £E.660.

Kingston-upon-Hull Corporation.—Sen. Asst. M.O.H. £800.

Lancaster Royal Infirmary.—Jun. H.S. £130.

Lincoln County Hospital.—Jun. H.S. At rate of £150.

London Female Lock Hospital, 283, Harrow-road, W.—H.S. At rate of £150.

London Jewish Hospital, Stepney Green, E.—Res. M.O. and Cas O. Each at rate of £150. Also Jun. Res. M.O. At rate of £100.

Longton Hospital, Staffs.—H.S. £175.

Lucknow University.—Professor of Anatomy. Rs.1 per mensem.

Manchester Babies' Hospital, Burnage-lane, Levenshulme.—Sen. Res. M.O. At rate of £125.

Manchester, Royal Children's Hospital, Pendlebury.—Res. Surg.O. At rate of £125.

Manchester, St. Mary's Hospital.—Jun. Asst. M.O. for Children's Out-patient Dept. At rate of £50.

Middlesex County Council.—Asst. M.O. £600.

Mildmay Mission Hospital, Austin-street, Bethnal Green, E.—Jun. Res. M.O. At rate of £100.

Miller General Hospital, Greenwich-road, S.E.—Out-patient O. At rate of £150.

National Institute of Child Psychology, 19, Warwick-crescent, W.—Clinical Registrar.

Paddington Green, Children's Hospital, W.—H.S. £1

Parbold, Lancs, Wrightington Hospital.—Asst. Med. Supt. £150.

Plymouth, South Devon and East Cornwall Hospital.—Res. Anæsthetist and H.S. to Spec. Depts. At rate of £100.

Queen Mary's Hospital for the East End, E.—Hon. Physician to the Psychological Dept. Also Res. M.O. and Cas. O. £2 and £150 respectively. H.P.'s and H.S.'s. All £120 each.

Queen's Hospital for Children, Hackney-road, E.—Surgeon to Ear, Nose and Throat Dept.

St. John's Hospital for Diseases of the Skin, 49, Leicester-square, W.C.—Hon. Jun. Med. Reg.

Salvation Army, The Mothers' Hospital, Lower Clapton-road, E.—Asst. Res. M.O. £80.

Sheffield Royal Hospital.—Ophth. H.S. Also Anæsthetist. £120 and £80 respectively.

Southport General Hospital.—Third H.S. £150.

Stoke-on-Trent, North Staffordshire Royal Infirmary.—Asst. H.P. £125.

Torquay, Torbay Hospital.—Hon. Anæsthetist.

West Riding of Yorkshire C.C.—Three Consultant Tub. O.'s. Each £750.

Winchester, Royal Hampshire County Hospital.—H.P. At rate of £150.

The Chief Inspector of Factories announces vacant appointments for Certifying Factory Surgeons at Southam (Warwick) and Chudleigh (Devon).

Births, Marriages, and Deaths

BIRTHS.

Blackwood.—On Oct. 17th, at Fenlea, Newcastle-on-Tyne, to Agnes Manning (née Jackson), M.R.C.S., L.R.C.P., wife of Frederick A. Blackwood, F.R.C.S. Edin.—a daughter.

Hallowes.—On Oct. 26th, at Stonefield House, Blackheath, the wife of Lieut.-Colonel R. Collis Hallowes, D.S.O., R.A.M.C., Rushgrove House, Woolwich, of a son.

Stanley.—On Oct. 23rd, at rue des Belles Feuilles, Paris, the wife of E. Gerald Stanley, M.S., of a son.

Townend.—On Oct. 18th, in a London nursing home, the wife of Dr. R. O. Townend, of Swaffham, Norfolk, of a daughter.

MARRIAGES.

Wenham—Partridge.—On Oct. 17th, at Edinburgh, E. G. Wenham, of Los Angeles, California, to Eleanor Joyce Partridge, F.R.C.S., daughter of Leonard and Eleanor Partridge, of Nymett Rowland, Devonshire.

Wilson—Temple.—On Oct. 21st, at St. Andrew's Church, West Kirby, J. St. George Wilson, F.R.C.S., to Constance Louise, daughter of the late J. H. Temple and Mrs. Temple, Caldy, Cheshire.

DEATHS.

Hobson.—On Oct. 14th, at Mayfield-road, Sanderstead, John Morrison Hobson, M.D., B.Sc., in his 79th year.

Lloyde.—On Oct. 25th, at his residence, Biddenham Turn, Biddenham, Bedfordshire, after a brief illness, John Henry Lloyde, L.R.C.P., L.R.C.S. Edin.

Manning.—On Oct. 23rd, at Croft End, Kendal, Philip Perc Manning, M.D., aged 68.

Robertson.—On Oct. 23rd, at Greenhill-gardens, Edinburgh, Thomas Murray Robertson, M.D., J.P., late Coroner Singapore, S.S., aged 71.

Wilson.—On Oct. 23rd, Alexander Wilson, D.L., F.R.C.S., o Victoria Park, Manchester, aged 71.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices o Births, Marriages and Deaths.

ADDRESSES AND ORIGINAL ARTICLES

THE MEDICAL AND PSYCHOLOGICAL ASPECTS OF GYNÆCOLOGY.*

BY JOHN S. FAIRBAIRN, B.M., B.CH. OXF.,
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CONSULTING OBSTETRIC PHYSICIAN TO ST. THOMAS'S HOSPITAL.

ETYMOLOGICALLY the term gynæcology should over both midwifery and the diseases of women, ut the title that should belong to the whole has een usurped by a part, largely owing to a separation practice between the two which occurred during he developmental stages of gynæcology. This rift-apart arose from maternity cases being excluded om the general and segregated in special hospitals, om fear of puerperal sepsis in pre-Listerian days, nd from advances in gynæcology being so far along urely surgical lines that a type of surgeon-gynæco- gist arose, and time was when a real divorce between e two divisions of the subject might have taken ace. But recent developments have been in the opposite direction, and a greater realisation of the sential unity of midwifery and the diseases of women as been a characteristic feature of recent thought, nd the reasons leading up to it are worthy of nsideration.

Essential Unity of Gynæcology.

Probably the infusion of the ideals of preventive edicine has done more than anything else to draw gether the two sides that had tended to separate om accidental and temporary causes. The preven- ve bias of mind made clear the illogical and rtificial nature of divorcing the physiological from the athological and the preventive from the remedial pects and the narrower outlook engendered thereby. or example, the provision for postnatal care in der to lessen disability, immediate and remote, om the diseases and accidents of childbearing once forged a link binding the two in a more timate union. So, too, the agitation over the atic maternal mortality-rate drew attention to the eaknesses of a divided training of the medical udent in two parts of a subject with a common ientific basis. About five years ago I reviewed† he old system, tracing the gradual unification training in both sections together and advocating period of whole-time clinical service in midwifery, fant hygiene, and gynæcology.

The tendency in this country and in Germany wards integration is not seen everywhere or to the ame degree, and in France seems to be rather in the irection of differentiation, while in America there are wo schools of thought moving in opposite directions. n one the diseases of women are being developed on urgical and pathological lines away from obstetrics, hile the other follows the same lines as here. The iews of the separatist school were recently set out[1] efore the British Medical Association by one of its hief advocates, Prof. Cullen of Baltimore, who egards gynæcology as a surgical specialty wholly etached from obstetrics but with further extensions nto abdominal and urinary surgery, and solely for the old reasons of convenience, technique, and operative experience. On the other hand, his predecessor in the chair at Johns Hopkins, Prof. Kelly, in his preface to a collective work[2] from his school, anticipates the return of gynæcology to her ancestral home and her obstetric mother. The question of the unity of obstetrics and gynæcology, although not completely solved, is much more than a mere doctrinaire abstraction, for it determines the attitude of mind in which the subject is approached and practised, and much of my argument will be occupied in pointing out the failures resulting from too great concentration on the mechanical side, with a relative neglect of the medical and psychological aspect

Although those practising other specialties undertake the therapeutics, whether medical or surgical, gynæcology is outstanding in its union of medicine and surgery in practice, I may quote, as an independent witness, Sir George Newman[3] who says, ". . . the obstetrician and gynæcologist is the great example of the unity of medicine and surgery in actual practice. Here is the full integration." It is in the diseases of women where progress on the surgical side has been so marked that failure to maintain the balance on the medical side has chiefly occurred, and more attention to the medical side is overdue if a proper balance and the repute of gynæcology are to be maintained.

ITS SEX-LINKED CHARACTER.

Gynæcology has moreover a feature that is not shared with any other branch of medicine in that its practice is limited to one sex, and my contention is that those professing it should be much more than surgeons with a special flair for the female pelvic organs. Their insight into womankind should surely be something more than that disclosed by their inspections of the varying anatomical and pathological appearances met with in the reproductive apparatus. It is in this regard that the gynæcologist has, in my opinion, failed to make the most of his undoubted opportunities, and I will follow the matter a little further.

The differentia of the sexes must extend further and deeper than the obvious structural and functional characters. Sex is determined at the union of the gametes and sex-differentiation begins early in fœtal life by hormonic agency, the accessory genital apparatus and external genitalia being moulded to the type appropriate to the sex of the gonad. Even skeletal changes become noticeable in fœtal life in the female shape of the pelvis, and these and other characteristics of the sex, physical and psychical, are apparent throughout childhood, and culminate in the development of the secondary sexual characters at puberty. Aschner, of Vienna, in a monograph[4] on what he calls the constitution of woman, which has never received from gynæcologists in this country the attention it merits, has described certain differences in the female tissues shown by their response to external influences.

Though not altogether convincing, Aschner's work suggests a line worth following. He thinks there is a lessened tone and greater tendency to laxity in her tissues, as shown by the frequency of weakness of the muscles of the abdomen and pelvic floor with ptosis of viscera, great liability to herniæ, varicosities and to such functional deficiencies as intestinal stasis, uterine inertia, and atonic hæmorrhages. He also thinks there is a more rapid and extensive production of blood and other body fluids, and that women bear loss of blood better than men.

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* The Bradshaw Lecture delivered before the Royal College of hysicians of London on Nov. 3rd, 1931. The lecture has been eveloped from an address to the Glasgow Obstetrical Society.

† THE LANCET, 1927, ii., 163.

It will be noticed that many of the conditions he instances are more simply explained as due to childbearing, or to differences in mode of life or occupation. Aschner's most interesting point, however, is that the difference between the female and the child in constitution is less sharply marked than that between male and female. Woman exhibits the greater excitability of childhood, and a tendency to diseases of a similar type, such as chorea, convulsions, skin eruptions, digestive atony, adiposity, and local or general infantilism. Stress is also laid on the greater irritability and sensitiveness of the nervous system, shown by a heightened reflex excitability, especially vasomotor, and wider spread of its effects; greater tendency to fainting, convulsions, psychoses, and a more marked response to suggestion, hypnosis, and environmental conditions.

I do not want to labour these differences beyond regarding the conception of a special sex-constitution as calling for further investigation. Putting them on one side there yet remains the far greater share of the reproductive process that falls on the woman, which must carry with it to an equivalent degree causes and occasions for the production of psychic effects arising out of the primitive sex and reproductive instincts. The physical and the psychical are closely related, disorder in the one producing disorder in the other with a large proportion of conditions of an intermediate type with disturbance of function of minor degree that must be regarded from both aspects if a correct perspective is to be obtained. Gynæcology has moved appreciably in the direction of recognising the interdependence of the two, but the movement has not as yet attained such proportions that gynæcological therapeutics can escape criticism from professional brethren, both within and without its own ranks. A mechanical cause and mechanical treatment still hold too prominent a place, and the psychical is not taken sufficiently into account even in cases in which the disability is more general than local.

The Dominance of Mechanistic Views.

Mechanical explanations and mechanical cures for the ills of the human body make an irresistible appeal to the simplest and meanest intelligence and is the reason for their remarkable persistence. Their dominance is well illustrated in the history of gynæcology, which is a branch of medicine that has but recently grown out from the main trunk. If we look back to the early 'eighties when the surgical advance was beginning to gain momentum, we find criticisms of gynæcological practice on similar lines to those of the past ten years, when the rate of advance has seemingly shown signs of slackening, for the time being at any rate. In the earlier period two outstanding figures in British gynæcology were Lawson Tait, leading the surgical division, before which the old tinkering methods were giving way, and Matthews Duncan on the medical side, who was holding, but scarcely gaining, ground. With his keen critical faculty and wide vision, Duncan poured scorn on his gynæcological brethren for their mechanical ideas and practice. He was especially severe on the craze for the pessary in the treatment of what he termed the minor displacements of the uterus and ascribed any benefit the patient might obtain to the enthusiasm of patient and practitioner in the simplicity of the mechanical explanation of the cause of the trouble and its mechanical cure. So delighted was he with the support given him from outside the ranks of gynæcology by Clifford Allbutt, in his Goulstonian lectures [5] of 1884 on Neuroses of the Viscera, that he dedicated the third edition of his Clinical Lectures to him, and says in his preface,

> "Little is to be found in these lectures on the all-pervading neurotic diseases of women; and, although the author feels himself quite unequal to the work, he may some day venture to publish a lecture on a subject which has already secured in this country the able services of Dr. Clifford Allbutt."

The portions of Allbutt's lectures [6] that concern the pelvic ailments of women are often quoted and are well worth study by all aspiring to gynæcology to-day, for they still hold good and almost with equal force. It is true that Allbutt's diatribes were directed mainly against swabbing of the cervix "by little Partington mops of cotton-wool on the ends of little sticks," by which "brave and active spirits were broken down under a false belief of a secret and overmastering local malady," and against the vogue for the pessary of his day—two methods of treatment which may now be said to have receded into the background of pelvic therapeutics.

MINOR UTERINE DISPLACEMENTS.

The minor displacements are worth closer study as an outstanding example of the persistence of the mechanical attitude of mind. Since the days of Matthews Duncan these displacements, except the backward one, have largely lost favour as a factor in producing disability in women, but, in the minds of many, retroversion and retroflexion have inherited the wealth of symptoms that belonged to the others of the family before they died out, and up to within the last ten years or so there was a craze for suspension or anchoring operations exactly similar to the derided pessary-mania of the previous generation. The 'pexy takes the place of the pessary, but the mental outlook of the practitioner is the same. He is travelling along the same road as his predecessor, but in accordance with the custom of the day, by the modern surgical operation instead of the old vulcanite prop, just as he goes his rounds in a many horse-powered car instead of the pair-horse brougham.

Some ten years ago I was stimulated to discuss this question‡ because the medical literature of the preceding period had been encumbered by records of series of hysteropexies, sometimes running into a hundred or more, that these lineal descendants of the pessary-users felt constrained to make public, and because variants in the methods of hanging the uterus up by its round ligaments had appeared with the same frequency that new pessary models had done in their time. I will now take the opportunity of giving some particular reasons to explain the difficulty in forming a just estimate of these displacements as a cause of disability and state my own view of their importance in this respect.

The gynæcologist labours under a handicap in checking his perspective of minor deviations from the mean in physical signs, because pelvic examinations are made only when there are symptoms suggesting of disorder in the reproductive apparatus. He has no basis of experience comparable with that obtained by the general physican in the examination of average samples of the population for insurance or admission to a pensionable service, and this lack of the opportunity of forming a just estimate of many anatomical variations that may occur in women with pelvic symptoms, or symptoms thought to be pelvic in origin, will largely explain the persistence of the mechanical factor as a cause of disability. The reasons why the backward position has remained firmly embedded after the others have been dislodged is that it is associated with the earlier degrees of prolapse and is frequently present in chronic pelvic infection nditions, so that symptoms are ascribed to the erine position rather than the associated condition.

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‡ Brit. Med. Jour., 1922, i., 587.

That the backward position per se cannot produce the iny and varied symptoms, local and general, that have en ascribed to it is now generally accepted, but there e still far too many unjustifiable operations being performed, because other factors are ignored and it becomes cessary to state shortly how far regard should be paid the backward position alone. It is physiologically a s favourable position and may cause interference with action. There is no evidence that it affects the menstrual action, for the vast majority of dysmenorrhœics have normal anteflexed and anteverted virginal uterus, and ere is no proof that the occasional cases with the opposite ndition represent more than the average incidence the backward position in women generally. In the oduction of menorrhagia retroversion is now so completely counted that no discussion on this point is required. But at it may lessen the chances of conception is proved by casional cases in which insufflation tests have shown at the uterine tubes are impermeable with the uterus the backward position but permeability is restored anteverting the uterus.

The forward and raised position of the os externum may ider more difficult the entry of spermatozoa from the sterior fornix, and the less advantageous position is also own by the many cases in which pregnancy has immediately lowed replacement for the treatment of sterility. There some evidence, too, of increased tendency to miscarriage out the third month with retroversion and of its being a s favourable position for drainage of the discharges from uterus, so that after labour and in infection of the rus there are good reasons for its retention in a forward sition by means of a pessary till involution is complete, possibly by operation if more than temporary treatment hought necessary. When retroversion is part of prolapse, abdominal operation is not required, and the treatment by a plastic operation on the pelvic floor. The occasional es in which a hysteropexy is called for require careful ection, and provide no justification for the wholesale formance of this operation for backache, bearing down, d other ailments in women who fatigue readily, and the eration is still too frequently done by those who do not or nnot look beyond the uterine position as the cause of ability.

The last ten years have happily seen these opera- ns of the 'pexy order slide gradually into background among gynæcologists as their like in e shape of nephropexies and colopexies are gradually appearing from general surgery. Happily for næcology, many of the cases of backache that once re considered suitable for hysteropexy now find eir way to the orthopædic surgeon, who regards them cases of sacro-iliac or lumbo-sacral strain, so that ponsibility for their treatment is being shifted on other shoulders. Physical exercises and general provement of the physique have long been cognised as beneficial in these cases, and thus the ange of doctor offers a more hopeful outlook to these tients.

It may seem that I have gone further into these inor displacements than their importance warrants, at I have done so for no other reason than that their ory is the best illustration gynæcology offers of the rsistence and influence of the materialistic cast of ind. Its extravagances seem to have increased with provements in surgical knowledge and technique, d are now more obvious in general surgery because the greater opportunities offered there. Thus the iticisms of our medical colleagues, particularly ose engaged in psychological medicine, are directed uch more to the practice of surgeons and the gynæcogist has come to be regarded as playing the minor art. In an address to the Clinical Society of lanchester not long ago[6] Dr. Robert Hutchison oke of the mechanistic school, surgical and gynæcogical, much as Allbutt had done 40 years earlier, ut with a somewhat lighter hand. He entitled is paper the Chronic Abdomen in contraistinction to the Acute Abdomen in the slang of urgeons. The cases he describes are those of the Goulstonian lectures of 1884 over again, and the difference is merely that of the substitution of surgical operations for pessaries and paintings of the cervix. "The road to the chronic abdomen," he said, "is paved with operations, and one of its chief physical signs is a surface criss-crossed with scars of exploring expeditions into its interior." The question of an auto-intoxication is discussed as a possible factor in the mental state of these abdominal women, of whom a vivid clinical picture is given, that everyone practising gynæcology will recognise as a type frequently seeking his advice. Hutchison regards operations as having merely a palliative effect, lasting about two years, but, like an opiate, tending to lose its effect and requiring larger doses repeated at shortening intervals. Emphasis is laid on the frequency of visceroptosis, and as in this condition the uterus is as often backward as forward, there is opportunity for its fixation and later of the other viscera that make up the extensive ptosis, as the suggestive effect of the previous operation wears off.

Sociological Factors.

Before selecting some instances of disorder in the reproductive functions that seem best to illustrate my thesis, I will mention two sociological changes, to which I do not think those practising obstetrics and gynæcology have given the attention they deserve —namely, (1) the total change in viewpoint from which questions of sex and reproduction are regarded by the community as a whole, and (2) the increasing demand for relief from the pains of labour and the shortening of its duration by the women who engage a medical attendant.

The first of these seems to have followed the drop in the birth-rate, the peak of which was reached in the mid-seventies and began among the educated and leisured classes but slowly widened its range and rapidly gathered momentum till, in the post-war years, all classes were involved; save perhaps the lower grades of casual labour and the shiftless and improvident. The outlook of mid-Victorian parents, to whom childbearing was of the established order of things and to be accepted as such, is poles asunder from that of the prospective husband and wife of this year of grace, who decide whether there is to be any family at all and, if so, its exact size and the intervals between the arrival of each member. Childbearing and the nurture of a family conflicts with the wider outside interests of the women of to-day and many who have entered on a professional or business career, or have other reasons, are not prepared to make the sacrifice involved. The feminist revolts against the stern biological law that, without respect for the equality of the sexes, has so unfairly laid the whole burden of childbearing on her sex.

The demand for an easy labour is a natural consequence of the relief of pain for disease or injury that can be given from childhood onwards with resulting diminished capacity to bear pain in both sexes, but particularly of the type of the recurrent pains of labour, continued for hours. Both these changes in the mental attitude towards reproduction must have their repercussions on its functions, some of which are more obvious than others. For example, there is nothing more resented by the modern married couple than their contraceptive plans going awry, and the distracted woman is brought to us to remedy the failure by what is called the humanitarian induction of abortion, her mental state being regarded as an indication for intervention.§ The term

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§ THE LANCET, 1927, i., 217.

Dr. Robert Fleming Library.

"humanitarian" is also applied to the termination of labour by the forceps when no other indication is justified, and its frequent use as a qualification would appear to indicate that it now means something adopted for the immediate relief of the patient that may not be the best for her in the long run. Both these social changes have had a very marked influence on gynæcological practice, especially in their psychological effects, to which reference will later be made.

Examples of Need for Attention to the Psychic Aspect.

I will now select some disorders of the sexual and reproductive functions that seem more particularly to call for psychological as well as gynæcological investigation and treatment or in which our outlook is, in my opinion, too mechanistic.

Sex-education and the early training of the sex-instinct have been left as common ground between the psychiatrist and pædiatrist, but should, in part at any rate, concern the gynæcologist for it is a time at which it may be possible to lessen the incidence of troubles with which he may later have to deal. The gynæcologist has taken little or no responsibility for the period up to puberty save in cases of actual pelvic abnormality, chiefly developmental errors, and the lack of practical experience of what can be done at this time of life in the way of prevention has left an unfortunate hiatus in his education. With the establishment of menstruation the psychical and biochemical factors must receive chief consideration in production of disordered function.

MENSTRUAL AND KINDRED DISORDERS.

Passing over irregularities at its onset as almost wholly of metabolic origin, the much debated problem of *dysmenorrhœa* and its causation provides another excellent illustration of the ill-effects of the dominance and persistence of the mechanical mind. Less than ten years ago at one of the congresses at which foregather the choicer spirits of British gynæcology there was a discussion[10] on this subject at which the opener and several subsequent speakers discussed nothing but mechanical causes and seemed to have advanced little further than their predecessors of the era of the obstructive theories; neither the psychological nor the metabolic factors came into the picture till late in the discussion, and then only in a half-hearted way, although frequent reference was made to prevention and hygiene.

Much has still to be learnt before this disordered function in healthy young women without disease of the reproductive tract is fully explained, but it may be said that minor anatomical and developmental deviations from the mean have now been largely abandoned as an adequate explanation of its occurrence, and the matter left for decision is rather relative importance of the metabolic and psychic elements. I do not intend to advocate any particular doctrine in explanation of its causation and will not go further than to point out that a physiological and preventive bias has now been given to the management of dysmenorrhœa, but more by the teaching of women practitioners to schools or attending female employees than of the elect of gynæcology. Its incidence has been greatly lessened by educational measures including the withdrawal of all suggestion of illness, continuing with outdoor games or exercise during the flow, and generally by a sensible hygiene in which all attention to menstruation as a possible handicap is avoided.

There are other disturbances of the menstrual function in which the psychological element preponderates, of which a few may be quoted as examples. The rhythm may be upset in the patient for whom an operation has been arranged at a convenient time but the best laid plans are upset by the emotional strain of admission to a hospital or home with the nursing preparations bringing on an unanticipated flow, a frequent experience of all of us. *Menorrhagia* in those living under conditions of abnormal sexual excitement is another disturbance that is wholly mental in origin, and doubtless many of this type have suffered from needless curettings. *Amenorrhœa* accompanying nervous breakdown or mental disease is well known, and so are the cases arising from the fear of or strong desire for pregnancy, and from emotional shocks of one kind or another. I recently saw a woman of 29, previously absolutely regular, whose periods suddenly ceased from the time of hearing of the death from an accident of the man to whom she was engaged; though she was physically well 18 months later, menstruation had not returned.

Of the various types of case met with in gynæcological practice in which the psychic element is evident, I would place in the forefront those in which the complaint of the woman is of trouble of some kind, difficulty or pain, in sexual relations. In my experience *dyspareunia* and *vaginismus* are rarely accompanied by the vulval or other local conditions described in the books or taught to students. In the great majority of cases in which difficulty has been present from the start of married life, it arises from the protective contraction of the constrictor vaginæ and levator ani muscles either from ignorance or dread of what the sexual act involves. If intercourse has become painful or difficult after being previously normal, there is more often marital unhappiness or other reason for defence against intercourse or against the pregnancy it may bring than any discoverable physical cause. In the majority of such cases the treatment is not gynæcological but psychological, and of husband as well as wife, in accordance with the circumstances of the particular case. Even when the trouble dates from marriage and such gynæcological measures as dilatation of the vagina and the subsequent use of dilators is employed, a frank discussion with both parties is usually necessary and possibly does much to complete the cure when the mechanical and suggestive effect of the operation is insufficient. In difficult cases combined treatment by gynæcologist and psychiatrist is most likely to be successful.

VOMITING OF PREGNANCY.

When once the reproductive function has begun there are many conditions that exhibit symptoms that may be psychic in their origin, and the one that at once comes to mind is that of the vomiting of pregnancy. Here is a disorder that was always difficult to treat and for which many remedies were suggested and had a vogue for a time, but little success was attained till the mental factor was recognised as predominant in a large proportion of the cases arising early in pregnancy.

The change of perspective was due partly to the large number of cases in which removal from home and relatives by admission to hospital sufficed for the cure of all but the more advanced and neglected cases, and partly to a paper[8] by Dr. Hurst in which the psychological factor in these cases was stressed and described as hysterical and arising from the suggestion to vomit. In this respect the description of hyperemesis in the text-books to-day offers a strong contrast with that of ten years ago. The old reflex form thought to be excited by retroversion and many other fanciful pelvic conditions and derided by Matthews Duncan, is dead and buried, and now the problem is narrowed down to distinguishing the rarer toxic from the commoner hysterical type. The usual plan in the management of such cases is to treat them in the first instance as hysterical if there is no evidence of toxæmia, by an elementary kind of psychotherapy, chiefly isolation and disciplinary management, in which persuasion and the removal of all suggestion to vomit plays the leading part. The vast majority of such cases are cured and cured quickly if treatment is begun early and carried out confidently and thoroughly. Failure to attain success is rare enough to prove the predominance of the psychic factor and suggests either that there is a toxic element in the case or that the condition has continued too long to risk further treatment on these lines.

MANAGEMENT OF LABOUR.

The preventive prematernity service has had the great advantage of bringing the obstetrician into closer contact with general medicine and of arousing in the physician some interest in the reproductive function, and thus bringing him nearer to his great exemplar, William Harvey. The number of joint discussions that have recently taken place in London regarding the management of various diseases complicating pregnancy are an instance of this closer association. But the preventive trend of mind developed in antenatal work has not permeated to the same extent the management of labour. The outstanding problem in midwifery at this moment is still how can normal parturition be secured? We have little definite knowledge of the factors that determine good uterine action or those that inhibit it. His antenatal investigations do not enable the obstetrician to predict with confidence that a well-built woman without abnormality in the presentation will succeed in delivering herself naturally. He has no means of judging how the uterine powers will act, and too little is known of the reasons of their inefficiency. Here again mechanistic teaching has been overdone. There has been too great concentration on mechanical hindrances to parturition and text-books are still filled with out-of-date information on forms of pelvic deformities, mostly rare, to the neglect of the every-day uterine inefficiency and its causation. Advance in this direction has been delayed by those practising midwifery having in the obstetric forceps a ready means of completing labour, and they have been content with the failure to secure natural parturition, provided an easy instrumental delivery will suffice. Among the various factors that make up the sum total of the causes of uterine inertia, there is no doubt that the psychological element and fatigue play an important part. Fatigue of the mother is the commonest indication for an artificial termination, and may be exhibited by emotional outbursts and restlessness, loss of self-control, with difficulty in managing the patient. Even before this stage is reached natural delivery is unlikely unless rest can be secured. The mental state unfavourable to natural delivery is lack of confidence in her own power and ability to see the labour through without assistance. It means that unless progress is rapid and some relief is obtained, the woman soon loses heart and expects her medical attendant to complete the delivery. The importance of the mental state is shown by the much larger proportion of natural births among women who engage a midwife than among those who engage a medical practitioner. The maternal mortality-rate is lower in the poverty-stricken and badly housed areas of all our large towns and higher in the well-to-do residential areas of which many examples may be found in the interim report of the Departmental Committee on Maternal Mortality.

To take an instance, the medical officer of health for the City of Leeds gives these comparative figures from a good residential area and a working-class ward in the city for the years 1920–1929.

	Maternal mortality.	Birth-rate.
Residential ward..	5·03	17·1
Working-class ward	3·01	20·0
Rate for the city	4·40	18·51

For this apparent anomaly many explanations have been offered, but there is no need to look further than the women themselves and their attitude of mind, especially in view of the sociological points I have already mentioned. Those of the midwife-employing class expect to deliver themselves, as is the local custom, and that medical aid will be required only for unexpected and unlikely happenings. The woman who engages a doctor is an entirely different proposition, as she often does so in the expectation that if things do not move quickly the artificial aid that is at hand will be immediately available.

Those of us who have served on the staff of maternity hospitals must often be struck by the much greater proportion of natural births in hospital patients than obtains in our private practice. The often-quoted differences in mortality-rates between midwife practices in hospital districts and the general rate for the country or well-to-do areas is to my mind to be explained more by the characteristics of the women delivered and less by the type of professional attendance. It is my criticism‖ of the Departmental Committee's report that it was unable to see past the attendants and material provision for childbirth, and gave too little consideration to the childbearing women themselves. But a spread of this symptom of mass-psychology regarding labour into the midwife-employing class must be anticipated and, as it spreads, so will the difference in the mortality-rates tend to disappear. With a more widespread demand for so-called humanitarian anæsthesia and humanitarian forceps, the mortality-rate will rise unless improvements in other directions are made which will compensate for it. Our object at the present moment must be to encourage and maintain, so far as we can, the midwife-employing class, and to discover how pain may be relieved and rest obtained for the woman in labour with least inhibition of natural function. Something might be done in prematernity work by inculcating confidence in their own powers among prospective mothers, quietening fears and generally studying in each patient how their outlook can be best attuned to what is before them. The psychological aspect certainly cannot be disregarded by anyone imbued with the desire to secure normal function in childbirth.

The function of *lactation* is similar in its sociological and psychological bearings. The working woman rarely fails to suckle her infant while, in a material proportion of her more leisured sisters, success may be attained only after much care in management. The unwilling mother or the one convinced of her incapacity to do her duty in this regard is almost hopeless. The highly strung nervous woman rarely makes a good nurse, indeed the management of breast feeding is almost wholly comprised in the application to practice of physiology and psychology.

‖ Proc. Roy. Soc. Med., 1931, xxiv., Sect. Obst. Gyn., p. 24.

LATER SEQUELS OF CHILDBEARING.

Many of the ailing women complain that they have never been the same since the baby was born—usually one only. This type of patient will be seen more frequently, if the routine postnatal examination of childbearing women becomes general, as is proposed for insured patients in the various schemes for a maternity service. In such cases experience and judgment are needed to form a correct perspective, for overdoctoring may readily produce more disability than former casual methods failed to prevent. The women usually complain of backache and bearing-down, of being always tired and never fit for anything. Many of them will show little to explain their disability beyond slight cervical or perineal laceration or perhaps retroversion without obvious prolapse. The physical signs are insufficient to explain the degree of disability or the general symptoms from which she suffers and there is usually a mental, as well as, or without, a pelvic element. The problem is clearly that of determining on which of these two the chief onus falls, and my own experience is that most of them require psychological rather than gynæcological treatment. In many of them defence against another pregnancy is the cause and I say this because so many express themselves as certain that further childbearing will kill them and assert that their doctor has concurred with their view. Also in the event of another pregnancy occurring their mental condition is aggravated, and they seek our aid in order to have abortion induced because their symptoms have greatly increased in severity.

Finally there is that large and heterogeneous group of the abdominal or abdomino-pelvic type of which Prof. Bramwell says:[9] "Chronic invalidism might often be prevented if these cases were recognised in their early stages and . . . . saved from the machinations of a materialistic surgeon, who ignores the mental side of the picture." We are asked to see them by our colleagues, they are sent by their family practitioner, or come on their own initiative either because they have already been treated for what they call womb trouble or are certain some part of their reproductive apparatus is at fault. No gross pelvic disease is discovered, though many minor conditions may be present that are constantly seen without symptoms or disability such as a torn cervix, laxity of the abdominal walls, and vulval outlet or general enteroptosis. Various medical names are offered as having been given to their bodily infirmity, and they are evidently pleased to have something with a local habitation and a name to explain their incapacity. If the mental aspect, the personality of the woman and her circumstances are ignored, and some one or other of those minor injuries is singled out for treatment, another picture, like those painted by Allbutt, Hutchison, and others, is exhibited and an invalid is manufactured.

I dare not trespass on the territory of the psychiatrist and discuss the mental origin of their disability. It is easy to appreciate how mental states may arise when sexual or maternal instincts are suppressed or cannot be satisfied without conflict with the herd instinct, and thereby symptoms arise that are directed to the pelvic organs. Also that these symptoms may be confirmed by over-treatment or other forms of suggestion, but I ascribe a more prominent place to fatigue than the psychologists, though possibly I ought to regard it as the consequence of some anxiety state. I have seen many instances of the selfless woman or mother that appears to have worn herself out for others. The psychotherapy required, save in special cases, is, however, of that simpl form administered almost daily by the family practitioner and, if he has the confidence of his patients and knows their "constitutions," he is favourably placed to get the best out of them. He may, however, ask the gynæcologist if there is a pelvic element that may serve as a peg on which the woman can hang [illegible] disability and is such as to call for treatment. It is in the solution of such problems that the need for greater weight on the medical and psychological aspects of gynæcology is shown.

Conclusion.

I am interested to note that in this lecture I have followed a line taken up in the Harveian Oration delivered in this College only a fortnight ago. The terms I have used are not those of the Harveian orator, but I, in another way, have been pleading for the stronger infusion into gynæcology of what he describes as "neo-Hippocratism," and the restoration of the idea of constitutions, and for the same individualistic study of the patient that he has advocated.

In spite of increased knowledge of morbid anatomy and skill in the craft of surgery, the work of the gynæcologist will still be open to criticism if the personal factors in all his patients are not taken fully into account.

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THE SURGERY OF THE DIFFUSE SPLENOMEGALIES.*

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II.

Diseases Due to the Splenic Action upon Abnormal Cells.

In the last group the destructive effect of the spleen is directed towards corpuscles which are apparently normal. There is, however, an extremely interesting group of diseases in which the spleen is exercising its apparently normal function of destroying cells which are, for some acquired or congenital reason, below standard, and since it is incapable of appreciating the fact that such cells may be sufficient for the patient's requirements, this normal function becomes a serious menace to the patient's life. These diseases are pernicious or primary anæmia, acholuric or familial jaundice, and thrombocytopenic purpura.

PERNICIOUS ANÆMIA.

The profound anæmia and the presence of large quantities of iron pigment within the tissues makes it evident that the primary anæmias are associated with excessive destruction of red blood corpuscles. The presence of an enlarged spleen, which is found on microscopic examination to contain large quantities of pigment and destroyed red cells, led to the belief that the seat of destruction was within this organ and raised hopes that a cure might be brought about by splenectomy. It was soon found, however, that

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* An address delivered before the Windsor Medical Society. Part I. appeared last week.

The operation was not satisfactory. Not only was the operative mortality high, but the hope of complete cure was poor. It was soon realised that constant changes were found in the red marrow of the long bones, but it was at first believed that these were compensatory to the prolonged destruction and that if the marrow failed under the severe stress there was a rapidly fatal aplastic anæmia; if, however, it reacted, a large number of immature red corpuscles were thrown into the circulation, thus giving rise to the characteristic blood-picture. Fascinating though this belief was, there was the difficulty that the characteristic clinical picture of the profound anæmia, the lemon-coloured skin, the greater frequency of the disease in males, the achlorhydria, and the gastro-intestinal and nervous symptoms, nearly always—if not indeed always—arose as a primary condition, and an anæmia of the secondary type due to repeated hæmorrhages—although perhaps very resistant to treatment and associated with anisocytosis, poikilocytosis, and even polychromatophilia—did not pass into an anæmia of the primary type. Both in the aplastic and pernicious anæmias the spleen is as a rule only moderately enlarged. The capsule is smooth and not thickened, infarcts may be present, the pulp is relatively firm and pale, the Malpighian bodies are visible but not enlarged, and the vessels are normal. There are in fact none of the characters which may be found with either Banti's disease or acholuric jaundice.

Recent knowledge makes it almost certain that in pernicious anæmia some gastric ferment is absent. The ferment is concerned with the digestion of protein, but is probably not pepsin, although its absence appears to be always associated with achlorhydria. The product of the action of this ferment upon protein, which is stored within the liver, appears to be necessary for the full development of the megaloblasts and, if it is absent, these cells are unable to develop and therefore proliferate. Being immature cells they are destroyed by the spleen. In cases of pernicious anæmia the administration either of the ferment in the form of raw hog's stomach or of the prepared product in the form of liver, in which it is stored, allows the megaloblast to develop and causes a rapid improvement in the symptoms. So beneficial are the results of this form of treatment that splenectomy to-day is hardly ever considered. It would, however, appear probable that occasionally cases might be seen in which the destructive effect of the spleen had become so established that the administration of this substance would be insufficient unless accompanied by splenectomy. Such a condition appeared to be present in the following case:—

A female patient of my own, aged 58, had for 17 years suffered with attacks of indigestion consisting of pain coming on one to one and a half hours after food, and relieved by vomiting. Five years before she had been diagnosed as gastric ulcer. At operation an ulcer was said to have been found on the posterior wall of the stomach. It was cauterised and invaginated, but no short-circuit was performed. For nine months she had noticed that she was rapidly getting weak. She had had dyspnœa, œdema of the legs, and loss of appetite. Her friends had told her that she looked a yellow colour. For some weeks she had had difficulty in walking and her legs had tended to drag.

On examination her skin was found to be lemon-coloured, her tongue was glazed, nothing could be felt within the abdomen, the X ray of the stomach was negative, but the test-meal showed free acid 0·05 per cent., and a total acid 26. Her blood examination showed 1,200,000 red blood corpuscles, hæmoglobin 22 per cent., colour-index 0·91, leucocytes 3720, severe poikilocytosis and anisocytosis, and four normoblasts for every 200 white cells. Under medical treatment she made little or no improvement. The colour-index on one occasion rose to 1·05. At the end of three months the red corpuscles were 1,800,000, but there were still four normoblasts, and also one megaloblast in every 200 white cells. One month later the normoblasts had risen to 106 in every 200 white cells.

At operation no abnormality of the stomach was found, but the spleen was distinctly enlarged and was removed. She made good progress after operation and was given ventriculin and liver extract. In February of this year—i.e., eight months after operation—her red blood corpuscles were over 3,000,000, the colour-index had sunk to 0·37, the white corpuscles had risen to 11,000, and, although there were still anisocytosis and poikilocytosis, there were only two normoblasts in 200 white cells and no megaloblasts. Clinically her condition had much improved.

Not only is this patient exceptional in presenting hydrochloric acid in her gastric juice, which would prevent some authorities from accepting her as a true case of pernicious anæmia, but also, in spite of her splenectomy and treatment with liver and gastric extract, she is by no means cured, although she is so greatly relieved that she is able to live a useful life, while before the splenectomy the disease was rapidly progressing. Whether there will be a definite indication for splenectomy as an accessory form of treatment with the administration of liver and stomach extract it is too early yet to say, but as a sole means of treatment there can be no doubt that it has failed. Hitzrot [10] carefully investigated this form of treatment and, although he only used it when the spleen was enlarged and thus was probably exercising its power of destruction, and when the blood-platelets and vital-staining cells were present in relatively large numbers, thus indicating an active marrow, yet even with such careful selection the results were not satisfactory. Giffen [9] reported a series of 62 operations in which, by most careful attention to the details of technique, the mortality was reduced to four, but only three of these cases survived after several years. He concluded that the operation was only justifiable in an occasional case. In addition to the patient reported above, I have operated on two cases, one of whom died in the post-operative period, while the other was admitted to an asylum two years after operation, and three years later died of valvular cardiac disease.

ACHOLURIC JAUNDICE.

One of the most interesting conditions in which the primary fault appears to lie with the red corpuscles is that of acholuric jaundice. In this disease there is an increased fragility of the corpuscles with a secondary anæmia, an increase of bile-pigment in the blood and, sooner or later, the formation of gall-stones which are generally of the pure biliverdin calcium type. The clinical manifestations are attacks of jaundice, which may be mild or severe, and are at first unaccompanied by the presence of colic or of white stools. Later, probably owing to the formation of calculi, typical colic and obstructive jaundice occur. Hence, if a patient has a history of repeated attacks of jaundice which are not associated with colic, this disease should always be considered. In the more severe cases the attacks may be accompanied by pyrexia and a feeling of general malaise, during which the liver and spleen are enlarged and palpable, the latter sometimes being painful. In the intervals the size of the spleen is less. When stones are present the attacks are indistinguishable from those due to other varieties of calculi. In long-standing cases hæmorrhages may occur, and Gibson lays stress upon the interesting fact that in some cases the earlier stages cannot be distinguished from splenic anæmia. Lord Dawson has also called attention to the manner in which these two diseases may clinically overlap, so that it is often extremely difficult to define the boundary between them.

One of the most interesting points of this disease is that, as Minkowski and Hayem described, there appear to be both congenital and acquired types. In my own group of four cases there was only one in which no family history could be obtained. It is generally stated, however, that the acquired examples may in turn become familial, and this appeared to be the case in one of my patients. His grandparents, parents, and brothers were all well, but his daughter, her daughter, and the son of one of his two sons were affected. With so fundamental a difference, the constancy of the fragility of the red blood corpuscles becomes of basic importance, for it is difficult to see how such a fault could be acquired; although, according to Gibson,[8] it may occur with syphilitic jaundice or with the hæmolytic jaundice of pneumonia. It is generally believed that this abnormal fragility is the primary factor, but this has not been the experience of all observers. Giffen states that in his series a normal fragility was found in occasional mild cases, a view with which Poynton[18] agrees. In my own series the fragility was increased in all four cases. There also appears to be some uncertainty as to what happens to the fragility after the patient has been clinically cured by splenectomy. The general belief is that it persists but, as the corpuscles are not being destroyed by the spleen, the patient is able to live an apparently normal life. In two of my own cases it persisted for three years, and in another case, observed five years after operation by another surgeon, it was still present. Thursfield, however, states that he has had three cases, which were followed for many years, in which the fragility disappeared, although it persisted for some months after operation.

The general characters of the spleen in these cases are very similar, but there is a great variation in the size. This probably corresponds to the clinical fact that during the exacerbations the spleen may be greatly increased, indicating an increased activity which has given rise to the increased jaundice. Specimens in the London Hospital museum vary in size from about 4 in. to 10 in. in the greatest diameter. As a general rule the capsule is smooth and not thickened, and shows few if any adhesions; so that in this disease splenectomy is a fairly simple procedure. The cut surface is dark red in colour and apppears to be filled with blood. Usually the pulp is firm, but in some, and generally the larger, it appears to be granular and softer. The Malpighian bodies are evident but not generally enlarged. The trabeculæ are often well marked; old infarcts and occasionally patches of perisplenitis may be present. In the series of six cases in the London Hospital museum there were no characteristic Gandy-Gamna bodies, although Gibson believes that they occur in most cases. McNee also states that they may occur, and that he had one case in which they were very numerous, but so small as to be scarcely visible to the naked eye. The microscopic appearances are characteristic, the spleen showing a pulp which is distended with red corpuscles, while in the active stages large amounts of hæmosiderin are present in the reticulo-endothelial cells.

Whatever be the cause of the increased fragility of the red corpuscles, the evidence seems to show that this is the primary factor, and that the action of the spleen is simply that of destroying corpuscles which are not up to standard. Although there is but little evidence in favour of Gibson's view that the primary lesion is a chronic inflammation of the spleen, there is no doubt that its erythrocyte-destroying function is variable and is greatly increased during the clinical crises. If this is the correct interpretation of the nature of the disease, the results of splenectomy would be expected to be excellent, and this is indeed the case. If an operation be performed between the crises the spleen is relatively small and, being as a rule free from adhesions, can be readily removed. The amount of anæmia is not so severe as in the cases of splenic anæmia and thus, unless the patients have been allowed to progress until serious complications due to the presence of gall-stones are present, they are usually good operative risks. In Giffen's 81 cases the mortality was only 4·93 per cent. In my own small series of four cases all made a good operative recovery. The end-results are also extremely good. The jaundice rapidly disappears, and the patient is soon restored to normal health. In 68 of Giffen's series the patients were living, one for 15 years and 13 for more than nine years after the operation. Two of my own cases are alive and well five and three years after operation. To obtain satisfactory results it is essential that the gall-bladder be always examined, and if it contains stones I am of the firm opinion that it should be removed, for although it is probable that the stones are all of metabolic origin, yet there is no doubt that they rapidly lead to a cholecystitis. The converse is also true, that in all cases of pure biliverdin stones, and especially of recurrent stones of this nature, whether in the gall-bladder or in the ducts, the possibility of acholuric jaundice should always be considered. Although this experience is that of most surgeons, Gibson quotes a case of Whipham's where jaundice and anæmia returned three months after the operation and the patient died.

THROMBOCYTOPENIC PURPURA.

The destructive function of the spleen upon cel other than the red corpuscles is seen in cases o thrombocytopenic purpura. Only a few years ag little was known of the ætiology of purpura, and th different varieties were classified purely on th clinical symptoms. A group was described wher the loss of blood was only a symptom of some toxi or infective condition, and a second group wher the disease apparently arose de novo. Of the latte group, simple purpura, Werlhof's purpura, arthriti or Schönlein's purpura, Henoch's purpura, an febrile purpura were described. There is no doub however, that many of these clinical types were onl varieties of the same disease, and a case that com mences as a purpura simplex may rapidly pass on t severe loss of blood from the gums, stomach an intestinal canal, kidneys, or uterus. Many of th cases also have a definite pyrexial period in th early stages. It is still recognised that purpura ma occur as a symptom in any form of severe toxæmi but of the other varieties the most important type that known to-day as thrombocytopenic purpu hæmorrhagica. As Sutherland and Bruce Williamson have shown, this is more commonly a disease of ear life, but may occur at any age, and is more frequen in women. In the six cases in my own series, thr were males and three females, the average age bein 39. There is no family history. In most of the cas the onset is with a feeling of general malaise and mild pyrexia of 100–101° F. A petechial rash is the noticed, and within a short time a severe hæmorrha occurs from the nose, gums, gastro-intestinal renal tracts, or uterus. The patient rapidly becom anæmic, and the disease may soon progress to fatal issue, sometimes with severe added sepsis. others, and especially in the younger patients, apparently complete recovery may take place, and relapses then occur.

These chronic relapsing cases, if in boys, are very likely to be mistaken for hæmophilia, and the diagnosis may then rest entirely upon the blood characters, which are very definite. They consist of (a) a low platelet count, (b) a prolonged bleeding time, (c) a failure of the blood clot to retract, (d) a normal clotting time, and (e) the appearance of petechiæ below a tourniquet. In hæmophilia, on the other hand, the platelet count is normal, and the clotting time is greatly prolonged. Although a low platelet count is of great importance in the differential diagnosis, Rosenthal[21] and Howel Evans[11] have shown that a similar change may occur with other splenomegalies. They described a condition of thrombocytopenia in which the platelets are low, falling from the normal 200,000 or 300,000 often as low as 4000, and one of thrombocythæmia in which the numbers are normal or above normal. The importance of their work lies in the fact that after splenectomy the number of platelets always rises so that a thrombocytopenic purpura will probably be cured by the operation. If, however, the platelets be already high, the splenectomy may be followed by widespread thrombosis, thus possibly accounting for the belief that the changes in splenic anæmia are due to a primary thrombosis.

The condition of the spleen varies considerably. This has been noted clinically. In the acute stages and the more severe varieties it is often but little enlarged. As the disease progresses or becomes more chronic, the spleen becomes palpable and may even be considerably enlarged, although it never reaches the enormous size seen with the splenic anæmias and the leukæmias. At post-mortem, or after removal, a similar variation is seen. In the acute and fatal cases the organ is not as a rule greatly enlarged. The capsule is not thickened, and is smooth and free from adhesions; it is often somewhat wrinkled and not tense, as in some of the larger varieties of spleen. Even in the more chronic cases the organ is often only moderately enlarged, and the capsule is rarely tense. On section the pulp is relatively pale, but not granular unless there has been much concomitant sepsis, in which case it may be almost diffluent. The Malpighian corpuscles are visible but are not enlarged, and the trabeculæ are not thickened. In the four specimens in the London Hospital museum no Gandy-Gamna bodies are to be seen.

Although the diminution in the platelet count is an important feature in the disease, it does not appear to be the primary cause of the hæmorrhage, for Bedson[2] has been able to produce a serum which will entirely destroy the platelets without giving rise to hæmorrhage. Tidy[25] has carefully considered and discussed the nature of the changes, and has come to the conclusion that the underlying factor is an abnormal permeability of the capillary wall. This allows of recurrent hæmorrhages, so that the platelets are reduced in number, thus increasing the tendency to hæmorrhage. Immature platelets are then produced by the bone-marrow and, being below standard, are destroyed by the spleen, so that a vicious circle is produced. It is, however, difficult to explain how an increased permeability of the capillary wall could be acquired, and it seems certain that the disease is not congenital, for the symptoms often do not appear until middle life. The frequency of pyrexia, especially in the early stages, the tendency for wounds to become septic, and often the onset of severe sepsis elsewhere, would lead one to believe that the primary condition is an infection which may cause a decreased activity of the bone-marrow or a primary destruction of the platelets. This would explain the fact that in the early stages, when the spleen is not chiefly at fault, a splenectomy is not likely to be successful. Later, when the infection has died down, the newly formed platelets—being still immature—are destroyed by the spleen, a stage which is clinically shown by the splenic enlargement. If a splenectomy is now performed the vicious circle may be broken and a complete and permanent cure result. Coke[4] has reported two cases where a throat infection appeared to be the certain causative factor, and in several of my own patients a septic focus seemed to originate the disease.

Tidy has laid stress upon another important point—the value of a leucocyte count, for if this be low there is evidence that the bone-marrow is becoming aplastic, while if the number of leucocytes be high it can be accepted that the marrow is functioning well. He points out that if the hæmorrhages have been severe there may be a leucopenia with a relative lymphocytosis, and thus the blood may resemble that of lymphatic leukæmia. My own experience has been in accord with this, for in the more chronic relapsing cases the number of leucocytes tends to be high. It is now generally recognised that the acute cases do not make good operative risks. Whipple[29] found that in eight cases of this nature there were seven deaths. On the other hand, many of the milder cases seem to make spontaneous recoveries, but Sutherland, who laid stress upon this fact, points out that for the relapsing cases there is no treatment other than splenectomy, and that in these cases the operation should certainly be advocated. It is my own custom, whenever possible, to wait until the temperature has fallen to normal, until the spleen is palpable, and until there is a definite decrease in the platelet count. It is, however, sometimes necessary to operate in cases of great severity where it is felt that the patient is certain to die unless an operation is performed. In these cases the risk is very considerable, but splenectomy may offer a slender chance of cure, especially if a blood transfusion follows immediately after the operation. Witts[30] has shown that in both the acute and chronic cases liver therapy is of no value. In the more chronic cases the results of operative treatment are often remarkable. The spleen is easily removed, as it is relatively small and free from adhesions; the mortality is therefore low. In Giffen's 20 cases there was no death, and of the 73 chronic cases collected by Whipple only six died. After the operation the progress is rapid, the platelet count rises almost at once, the hæmorrhage ceases rapidly, and the patient progresses to complete health. Relapses are very rare.

In all the above conditions, in which there is destruction of the normal or abnormal constituents of the blood, the clinical picture may be clear-cut and well-defined, but in others there is a tendency for the symptoms to overlap and even for one clinical syndrome to pass into another; thus one of the spleens in the London Hospital museum is from a female aged 53, who 37 years previously had been admitted as a splenic anæmia; 18 years previously she had again been an in-patient with pernicious anæmia, and had finally been admitted as a case of acholuric jaundice, showing on this occasion jaundice, an increased fragility, and a history of having one sister with an enlarged spleen and jaundice. It is also well-recognised that purpura with a diminution in the number of platelets may be found with several forms of splenomegaly other than thrombocytopenic purpura. Especially is this so with splenic anæmia; one of my patients had the combined syndrome of splenic anæmia, platelets of only 45,000, and a bleeding time of six minutes. Her only symptom had been severe attacks of hæmatemesis; the spleen was much enlarged and of the Banti type, and at operation there was a coarse cirrhosis of the liver. Splenectomy was followed by very satisfactory results. Another of my cases, having the typical history and physical signs of a thrombocytopenic purpura, was found after death to be a case of widespread Hodgkin's disease.

Gibson[8] has described at length the close relationship between splenic anæmia and acholuric jaundice, and has shown that splenic anæmia may be associated with an increased fragility of the corpuscles, and later with jaundice. He has also reported cases where one member of the family has had splenic anæmia and another acholuric jaundice. Avery has also reported an interesting case where a polycythæmia became converted later, owing either to the aplastic condition of the marrow or the stimulation of the hæmolytic activity of the spleen, into a pernicious type of anæmia. It therefore seems probable that many of the conditions which we have been accustomed to regard as distinct diseases are rather clinical syndromes due to over-activity of one or other of the functions of the spleen and, whether the primary factor be an inflammation of the splenic tissue or some change at present ill-understood elsewhere in the body, it becomes easy to understand how only one or several of these functions may be deranged, or even how the increase of one function may follow that of another.

Errors in the Splenic Action upon Leucocytes.

Although it is believed that the Malpighian bodies of the spleen supply lymphocytes, and that leucocytes arise from the splenic pulp, it probably never happens that an excess of this function is limited to the spleen itself. Both lymphatic and splenomedullary leucocythæmias, although generally regarded as due to malignant overgrowth of the cells which have escaped into the general circulation, are apparently due to widespread changes, so that although the spleen may be one of the centres of such formation it is certainly not the only one. These conditions are not, however, always easy to recognise for, as Gibson points out, in the crises of acholuric jaundice the condition of the blood may closely resemble that of a leucocythæmia. The blood picture in acute purpura may also closely resemble that of a lymphatic leukæmia. Moreover, in some cases the error appears, for a time at any rate, to be mainly limited to the spleen, so that splenectomy is followed by a temporary improvement both in the condition of the patient and in the blood picture.

One of my patients, a male aged 41, sought advice because of increasing weakness and profound anæmia with an enlarged spleen. His spleen was enormous, and the differential white blood count showed 70 per cent. of a large mononuclear type of cell more like an endothelial cell than a large hyaline white cell. The spleen, which weighed 12 lb., was removed, and showed the pulp widely infiltrated with similar large round cells, which were regarded as mobilised histiocytes. After the splenectomy his health greatly improved, as did the blood picture. The endothelial-like cells rapidly disappeared, and five months after operation the blood picture was normal. Six months later—i.e., 11 months after operation—his symptoms and the abnormal cells in the blood gradually reappeared, and he died 18 months after operation.

Another case of mine who has been regarded as a chronic myeloid leukæmia is alive and relatively well six years after splenectomy, although her blood still shows normoblasts and myelocytes.

In either condition the operation is one of considerable danger, and is associated with a high mortality. X rays and radium have of late given much more satisfactory results, and hence an operation is usually regarded as unjustifiable. Giffen states, however, that after the use of these accessory methods of treatment splenectomy is associated with much less risk. Forty-three of the cases he analysed were operated upon with only three deaths. Of the survivors, 20 lived longer than two years, and five for more than two years. In a few cases, therefore, it may be a satisfactory measure.

Chronic Granulomatous Lesions.

In the interesting conditions of Hodgkin's disease and the so-called lymphosarcomatosis the spleen is widely affected, and suffers an apparently diffuse enlargement. This, however, is only a part of what is probably a diffuse granulomatous inflammation, and, in Hodgkin's disease especially, it is not as a rule difficult to determine that other sites of the body are affected, so that even in the so-called abdominal type not only are the mesenteric and lumbar glands involved in the lesion, but other more easily examined glands may also be diseased. There is no reason to believe that removal of the enlarged spleen would help in any way towards an abatement of the general change. In the so-called lymphosarcomatosis, which is also probably a chronic inflammatory lesion rather than a neoplastic condition, the difficulties are greater in that the main change may be in the spleen, so that it may be impossible to determine the presence of enlarged glands until the abdomen is opened.

In one of my series of three this was the case. The condition was regarded as splenic anæmia, but at operation a grave prognosis was given, as a few enlarged glands were found within the abdomen. After removal the spleen showed on section a large number of ill-defined spherical white areas which were apparently greatly enlarged Malpighian bodies, thus suggesting lymphosarcomatosis, a view which was confirmed on microscopic examination. She died seven months later of what was supposed to be a pneumonia, but what was probably a spread of the disease. Of the other two cases, one died in the post-operative period and the other of general lymphosarcomatosis nine months later.

In all cases, therefore, in which a splenomegaly is associated with a general lymphatic enlargement, the prognosis must be regarded as grave, and a splenectomy as unlikely to be of any value.

Metabolic Changes in the Spleen.

The remaining conditions of surgical interest in which a diffuse enlargement of the spleen occurs are now known to be only part of a general metabolic change. They are all rare, and consist of three somewhat closely allied conditions known as Gaucher's disease, Niemann-Pick disease, and hypercholesterinæmia. The characteristic change in the first two consists in the presence of large, round, vacuolated cells in the spleen, bone-marrow, and glands, the condition being originally believed by Gaucher to be a primary endothelioma of the spleen. Although these two conditions may so closely approximate to one another that a differential diagnosis is impossible, yet in well-marked examples there are clear points of distinction. Gaucher's disease is a congenital and familial condition which may appear early in life or may not show itself until relatively late, while the Niemann-Pick syndrome, being generally fatal, appears only in one generation and usually occurs in young infants of about six months. Both conditions are more common in females and in Hebrews. Gaucher's disease is characterised by a progressive enlargement of both liver and spleen, and especially of the latter. There is bronzing of the skin and often an anæmia of the secondary type. Most commonly there is a characteristic wedge-shaped thickening of the conjunctivæ but, as Welt, Rosenthal, and Oppenheimer[28] have shown, this is not constant. With the anæmia there may be a thrombocytopenia which is then associated with hæmorrhages. The bones are often painful and tender owing to absorption. The disease tends to run a chronic course.

The Niemann-Pick disease shows a similar enlargement of the spleen and a bronzing of the skin. There is a cherry-spot in the macula. The blood changes may be similar, but there is a more rapid progress with an increasing cachexia leading to death. There is an excess of blood-cholesterol and a constant lipæmia, and after death an excess of cholesterin in the organs. In Gaucher's disease characteristic cells are found in the liver, spleen, bone-marrow, and lymph glands, and in the Niemann-Pick disease these are also seen in most of the other organs, including the brain, cord, vessels, kidneys, adrenals, and intestine. The changes in the cells, as Mandelbaum and Downey[15] have shown, are metabolic in origin. In Gaucher's disease the substance in the cells is believed to be formed of kerosin, while in the Niemann-Pick disease it is probably cholesterol.

There is a rare but interesting condition which is somewhat closely allied to the above. Only one such case occurred in my series of 42 cases. This has been fully reported by Brain and Byrom.[3] It was characterised by deep jaundice and pigmentation, and by the presence of confluent xanthomatous patches on the face, neck, breasts, arms, and palms. The liver and spleen were enlarged, and the blood-cholesterol was greatly increased. The liver at operation was enlarged but smooth, the spleen was considerably enlarged, and on section the Malpighian bodies were conspicuous but not greatly enlarged. No recent or old hæmorrhages could be found. The chief microscopic change was a remarkable degeneration of the walls of the arterioles and arterial capillaries, and although the reticular cells showed an abundant, ill-developed vesiculated cytoplasm, the characteristic cells of Gaucher's disease were absent. Parkes-Weber, in the discussion following this report, states that he regarded the condition as a primary metabolic abnormality causing the hypercholesterinæmia, which in turn led to xanthomatosis of the biliary ducts, and so caused jaundice.

Since in this group the changes in the spleen are only part of a general metabolic error, it is manifest that *splenectomy cannot produce a cure*. In the Niemann-Pick disease the early age of the patients and the rapid course of the disease prevents this procedure being of any palliative value, but with the more chronic progress of Gaucher's disease operation may overcome the thrombocytopenia and thus relieve the tendency to hæmorrhage. It may also give great relief from the pain and discomfort due to the enlarged spleen. It should clearly be reserved for cases where the general health of the patient is still fair. In such, Cushing and Stout found a mortality of six in 29 cases. Of the 23 survivors, the results were favourable in 16, but none of these had lived for ten years. Hunter and Evans have reported the one authentic case occurring in the London Hospital. This patient was alive and well 13 years after a splenectomy performed by Sherren. She still showed the characteristic bronzing of the skin, the conjunctival thickenings, and the enlargement of the liver, but she was free from pain and discomfort.

It is manifest that in these diffuse enlargements the spleen may play a very varying part. That its functions are at present so ill-understood gives a peculiar fascination to the study of its diseases; already the fact is emerging that similar functions may be stimulated or retarded by many different lesions, but in the greater part these changes are inimical, and splenectomy therefore affords a hope of cure in many cases which but a few years ago would have been regarded as hopeless, and the patients left to a lingering death.

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THE ALKALINE TREATMENT OF CHRONIC NEPHRITIS.

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THE work of Osman[1] on the prophylaxis of scarlatinal nephritis and on the therapeutics of hydræmic nephritis has called attention to the part played by acids and alkalis in the functioning of the kidney, and has suggested that the use of large doses of alkalis may favourably affect the clinical course of certain types of nephritis, and may even have an influence in altogether preventing scarlatinal nephritis. Again, attention has frequently been called to the probability of a local acidosis in cases of functional albuminuria[2] and in experimental nephritis.[3] Lastly, a number of authors have supported, on more or less empirical grounds, the custom of administering alkalis in cases of nephritis, a recommendation which was, indeed, made by Bright himself.[4]

The Questions at Issue.

The processes of metabolism on an ordinary mixed diet yield daily an excess of non-volatile acids equivalent to about 500 c.cm. of N/10 solution per day, and these acids have to be excreted by the kidneys. When the kidneys are inadequate for this task, a retention of acid tends to occur in much the same way as urea is retained in the blood when the kidneys are gravely diseased. The retained acids have, of course, to be neutralised by the body bases, and hence it is common to find that a considerable diminution in the alkali reserve of the blood occurs in cases of advanced nephritis on an ordinary diet. It is not unreasonable to suggest, therefore, that the work of the diseased kidneys may be considerably lightened by the use of diets which will not leave, on oxidation, the usual great excess of acids over bases. The acid- or base-forming properties of food depend on the inorganic constituents, or ash, remaining after the organic constituents have been oxidised in the body, and, according to the type of food eaten, this ash may be neutral, acid, or alkaline. Thus, to some extent at least, the equivalent of alkali administration can be obtained by the use of basic diets, and Sansum, Blatherwick, and Smith[5] claim to have obtained considerable clinical improvement in 90 per cent. of their arterial hypertension-nephritic group of patients by the use of such diets.

We have recently shown[6] that diets of a highly basic character are better tolerated by the advanced chronic interstitial nephritic than diets of an acid-producing character, which tend to exacerbate the condition. On a highly basic diet the clinical condition of the patient tends to show some improvement, and the alkali reserve of the blood, as measured by its carbon dioxide combining power, is invariably increased (provided, of course, it has not previously been artificially raised by the administration of alkalis). Coincidentally with this increase in the alkali reserve, the acidity of the urine is diminished, and the non-protein nitrogen of the blood is decreased. We suggested[6] that these phenomena had nothing to do with the amount of protein ingested, since the protein intake in both the high base and the high acid diet was kept identical in our experiments. Only the kind, and not the amount, of protein was varied. This suggestion, however, is subject to the criticism that the nature of the protein may itself be important. The protein of the basic diet, derived as it is largely from vegetables, may be less completely absorbed than the animal protein of the acidic diet. In other words, the effect produced by the basic diet in lowering the blood non-protein nitrogen may be simply due to the patient taking the equivalent of a low protein diet. Again, it has to be remembered that the proteins contained in the basic diet differ from those contained in the acid diet in the amino-acids composing them. It is therefore possible that the beneficial effects of the high base diet and the deleterious effects of the high acid diets may be due to the nature of the amino-acids supplied in the different types of protein, and not to the actual acidity or basicity of the diet used.

These questions are of considerable clinical importance. If it is the particular type of protein which *is of importance in determining* whether or not further renal damage results, it becomes necessary to enforce a rigid dietetic regimen. If, on the other hand, it is simply the acidity or alkalinity of the diet which matters, then dietetic restrictions are of less importance, so long as any diet given is sufficiently "covered" by doses of alkalis.

Lastly, it appeared desirable to confirm our previous results since, owing to the laborious nature of the investigation and the difficulty in collecting suitable patients on whom to make observations, it was only possible to study a small group of cases in the course of many months. In order to investigate these points, therefore, a further series of cases have been studied, the results from which are reported here.

Method of Inquiry.

The experimental methods and details of the diets used have been fully described elsewhere.[6] Briefly, the technique was as follows:—

On admission to hospital, the patient was placed for some time on a standard low protein diet, in order that any improvement due to simple hospitalisation might be attained before the actual period of observation began. When this preliminary period was over, the blood and urine chemistry was determined, and the patient was given one or other of the experimental diets—a high acid diet containing a preponderance of meat, fish, eggs, and cereals; or a high base diet containing a preponderance of milk, vegetables, and fruit. In either case the protein, fat, and carbohydrate content of the daily ration was quantitatively the same, the protein amounting to 1·0 g. per kg. body-weight (or, in the case of children, 1·5 g. per kg. body-weight). The total calorific value of each of the diets was 2100 cals.

After a suitable dietetic period, the length of which had been determined by previous experience, and after the blood and urine chemistry had been again examined, the patient was either changed to the other diet, or the character of the existing one was entirely altered by the administration of suitable doses of alkali or acid. In this way the patient was subjected to a number of dietetic variations: a control period on a standard diet; a period on an acid diet; one on an acid diet covered with alkali; one on a basic diet, or on a basic diet plus alkalis; and sometimes one on a basic diet covered with acid. The order in which the diets were given varied, and usually the complete dietetic cycle was repeated. The blood and urine chemistry was determined before each change in the diet was made.

The question of whether the beneficial effect of alkalinity was due to a restricted absorption of protein resolved itself into an estimation of the total output of nitrogen in the urine and fæces during each dietetic period.

Results.

It may be said at once that our more recent series of observations has entirely corroborated the findings previously obtained. On alkaline treatment clinical improvement was usual, and coincidently there was also improvement in the blood non-protein nitrogen, together with an increase in the alkali reserve, and sometimes a distinct diminution in the output of urinary albumin. The cases used in these observations were necessarily advanced chronic nephritics, since only in them is the blood chemistry sufficiently altered to give fluctuations of magnitude great enough for proper demonstration. In milder cases the diets produced their beneficial or deleterious effects without any manifest alteration in the blood chemistry. A number of our cases were so far advanced as to show a somewhat increased blood creatinine; and it is significant that in these cases the blood creatinine continued to rise steadily, completely irrespective of the diet used and of alterations in the urea nitrogen and alkali reserve of the blood. We have been unable to determine whether this rise in the blood creatinine was more rapid on the high acid than on the high base diet. Our impression is, however, that even in cases on the verge of uræmia life may be definitely prolonged by alkali therapy.

ILLUSTRATIVE CASES.

Evidence that the beneficial effect of the high base diet lies in the excess of base over acid, rather than in the nature of the protein used, is best given by illustrative cases. Those we have chosen are entirely epresentative, and in no way atypical of the series, hich includes 17 cases.

CASE 1.—A schoolboy, aged 12, had had an attack of acute ephritis one and a half years before the present admission. he acute condition had gradually passed into one of subcute parenchymatous nephritis with marked albuminuria nd a few red blood corpuscles in the urine, low serum rotein, and some œdema. There had been no difficulty in xcreting nitrogen. He was eventually discharged on that ccasion in fairly good condition, with only slight lbuminuria, no œdema, and little or no blood in the urine. Three months after his discharge he was readmitted, aving caught a chill seven days previously, whereupon uffiness had reappeared in the face with some œdema of he feet, and these symptoms were accompanied by some eadache and breathlessness. The urine once more contained large amount of albumin and some microscopical blood; he red blood corpuscles were 3,200,000, with a hæmoglobin ercentage of 50. The blood pressure (which had previously een steady at 110/70) was now constantly raised to 130/90, nd the urea-concentration test (previously quite normal) ow gave readings of 0·77 per cent. and 1·37 per cent. for he first and second hours respectively. The blood chemistry n admission did not show any variations from the normal ange. It was thought, however, that the patient was passing from the stage of subacute parenchymatous nephritis o the stage of secondary contracted kidney.

The chemical results of four months' observation on this case are summarised in Fig. 1. After the preliminary control period, the patient was first given the high acid diet, which produced the usual fall in the alkali reserve and rise in the non-protein nitrogen of the blood. The addition to this diet of a sufficient amount of sodium bicarbonate and potassium citrate to give an excess of basic radicles over non-volatile inorganic acid radicles then caused a complete reversal of this tendency; the strongly acid urine became alkaline, the alkali reserve of the blood rose, and the non-protein nitrogen fell. Here it should be noted that the beneficial effect must have been due to the alkali added, since the food intake during the two periods was identical in quantity and in kind.

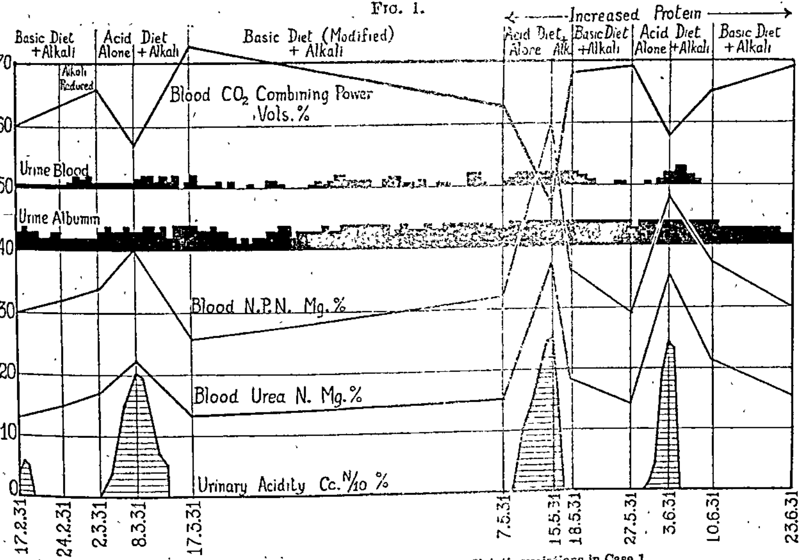
A six weeks' period on a high base diet supplemented by alkalis followed. During this period, although the urine remained alkaline, there was a slight fall in the alkali reserve, and a corresponding slight rise in the non-protein nitrogen of the blood. These changes in the blood chemistry, though very slow when compared with the more marked and rapid changes previously evoked, call attention to the importance of a sufficient supply of alkali. We have repeatedly found in our advanced cases of nephritis that the high base diet was of itself quite insufficient to maintain the alkali reserve of the blood, and even to prevent the excretion of an acid urine. In most cases the addition of alkali is necessary even to this diet, and the amount can only be determined for each individual.

At this stage the first observation was repeated, with, however, a greater protein intake. Again the acid diet produced its usual effect on the blood chemistry, an effect which was immediately reversed by the simple addition of alkali in amount sufficient to produce an alkaline urine. The effect was identical with that previously observed, but magnified by the fact that the protein intake had been doubled. A subsequent period on a basic diet with the addition of an adequate amount of alkali gave a continued chemical improvement, and a further repetition of this cycle of dietetic changes gave identical results.

With such short dietetic periods, alterations in the urinary blood and albumin are difficult to observe. Nevertheless, in some cases there was a tendency for the blood and albumin to be decreased while the patient was on alkaline treatment, and increased while he received the uncovered acid diet. In Case 1, however, this tendency is not apparent.

There can be no doubt in this case of the deleterious clinical effect of the high acid diet. In fact, the high acid diet without added alkali had to be stopped

FIG. 1.



The response of the blood and urine chemistry to dietetic variations in Case 1.

before the expiry of the full dietetic period owing to its harmful effect. On each occasion the patient became puffy about the face, complained of headache and nausea, and was somewhat drowsy and lethargic. Nor can there be any doubt of the beneficial effect of alkali for, on each occasion, its administration was followed by the rapid disappearance of these symptoms, even though no other change in the daily intake was made.

CASE 2.—A joiner, aged 31, five years before admission had begun to have mild polyuria, which gradually became more marked. Six months before admission he noticed that his face was sometimes slightly puffy on rising in the morning. He then noticed that he was becoming more easily tired after his work, and this feeling of exhaustion became gradually more troublesome. He also began to suffer from headaches and inability to concentrate, and noticed that his eyesight was less acute than it used to be.

His face was very slightly puffy, but there was no other œdema anywhere. Some anæmia was present; the red cells numbered 4,160,000 and the hæmoglobin percentage 74. The blood pressure was not much raised. The 24 hours' volume of urine was increased, and contained a moderate amount of albumin and casts. The separate specimens passed were of low and constant specific gravity. A urea-concentration test gave figures of 0·90 per cent. and 1·41 per cent. for the first and second hour specimens respectively. The urea nitrogen of the blood was 40 mg. per 100 c.cm., and the carbon dioxide combining power was 54 vols. per cent.

Results entirely similar to those in Case 1 were obtained from this patient, and are shown in Fig. 2. Apart from the general demonstration that the chemical situation deteriorates with the acid diet and improves on the addition of alkali, this case is interesting as showing once more that a basic diet may be quite insufficient by itself to maintain an alkaline urine and a high alkali reserve of the blood. The case also illustrates the steady increase in the blood creatinine in spite of fluctuations in the blood non-protein nitrogen as a whole, and, indeed, in spite of a *net* fall in that index.

The Questions Answered.

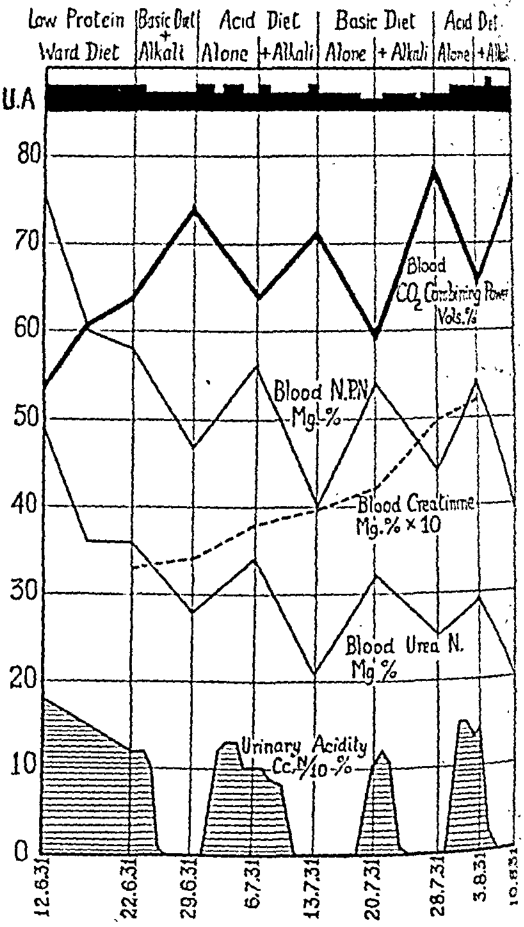
These results, supported as they are by a number of others entirely similar, fully justify the conclusion that the beneficial effects of the high base diet are due, not to the nature of the protein, but to the basicity of the diet, and that they may be reproduced by the administration of an acid diet provided it is covered by adequate doses of alkali—a precaution which is often necessary even with the high base diet itself.

The second question we have raised—whether, on an alkaline diet or on an acid diet plus alkali, less protein is absorbed than on an acid diet alone—is very simply answered. Analyses of the urine and stools demonstrate that the amount and distribution of the nitrogen excreted are the same whether the patient is receiving the one diet or the other. It is reasonable to conclude, therefore, that, however the alkali may exert its beneficial effects on the blood chemistry, it is not by altering the amount of protein absorbed, nor by decreasing the amount of protein breakdown in the body. This point is one of more than mere academic interest, for our object was not merely to lighten the load on the damaged kidney, but to give the patient an adequate diet both in total calories and in protein. This object, we believe, is shown by our experimental results to have been attained. As a minor point in this connexion it may be mentioned that the patients did not lose weight even when kept on the basic diet with added alkalis for a considerable time.

TREATMENT.

The classical treatment of chronic interstitial or azotæmic nephritis consisted in giving an exceedingly low protein diet, chiefly in the form of milk, with the total exclusion of meats. This diet, though accidentally basic in character, was deficient in nitrogen and, though it has been shown that man can subsist for very long periods on exceedingly small amounts of protein, to do so requires a very carefully balanced diet such as was not supplied by the more old-fashioned nephritic regimen. The modern procedure, recognising this deficiency in protein intake, allows a more generous amount of protein, but in doing so fails to provide the excess of basic radicles over acidic radicles of which our observations suggest the desirability. Thus both treatments are partly right and partly wrong.

FIG. 2.



The response of the blood and urine chemistry to dietetic variations in Case 2. U.A. = urinary albumin.

Our results seem to indicate that the best method is to supply adequate proteins and at the same time to keep the urine alkaline. By this means several cases, with smaller degrees of renal damage than those considered here in detail, have definitely improved and have apparently maintained their improvement. It is possible that the lightening of the load on the kidney may have arrested the progress of the disease, and may even have allowed some regeneration of tissue to take place. On the other hand, it must be admitted that in more advanced cases the disease has not been arrested, though the clinical condition of the patient and the height of the blood-urea may have been temporarily benefited.

The practical deductions from these observations are that in chronic nephritis the urine should be kept alkaline, and that this can best be accomplished by giving basic ash foods together with an adequate quantity of alkaline salts. The type of protein is theoretically immaterial, provided always that it is adequate, and that sufficient alkali is given. In practice, however, the highly acidic character of meat and cereals makes their adequate covering with alkali a matter of some difficulty, and it seems desirable that for this reason their inclusion in the diet should be restricted, though not necessarily abolished. The proteins should therefore be derived mainly from milk and vegetables, though it is possible o include enough meat, fish, and eggs to secure easonable variety.

Though not of direct concern to our present thesis, it is of interest to note that our results have shown in individual ases a very real relationship between the alkali reserve of he blood and the non-protein nitrogen in nephritis. This elationship, which was also noted by Marrack,[7] is to some xtent a general one, and though, when many different ndividuals are grouped together, the correlation is less bvious, it is none the less quite definite, as is shown in the able below. There is thus a tendency for a low alkali reserve o be accompanied by a high non-protein nitrogen, though we must emphasise that it is only with alterations in the lkali reserve by the mechanism at work in nephritis that uch a relationship exists. In other words, it is the retention of "fixed" acid which is accompanied by a retention of itrogen.

TABLE showing the incidence of acidosis in a series of 135 bservations on advanced nephritics, arranged according o the values of the blood non-protein nitrogen and the arbon dioxide combining power (alkali reserve).

Blood non-protein nitrogen mg. per 100 c.cm.	Blood CO_2 combining power in vols. per cent.				
	Over 70.	60–70.	53–60.	45–53.	Under 45.
Under 40	26	17	2	—	—
0–75	3	39	15	5	—
5–100	—	2	3	7	1
Over 100	—	—	2	3	10

Summary.

(1) A series of 17 cases of chronic nephritis has been studied, the reactions to certain types of diet and to alkalis being observed. (2) A basic type of diet is better tolerated by such patients than an acidic type. (3) The deleterious effect of an acidic diet may be counteracted by the simple administration of adequate doses of alkali. (4) In advanced cases, at any rate, it is usually necessary to supplement even a basic diet with alkaline salts in order to maintain an alkaline urine. (5) The beneficial effect of the basic diet seems to be due entirely to its alkalinity. (6) The alkalinity does not act by reducing the absorption of protein or by decreasing the rate of breakdown of the body proteins.

Two of us (D. M. D. and C. P. S.) wish to thank the Medical Research Council for a part-time personal grant. The expenses of the work have been partly defrayed by a grant from the Moray Research Fund of this University, for which we also record our thanks.

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RADIUM BY MOUTH OR INJECTION IN THE TREATMENT OF HIGH BLOOD PRESSURE.

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RADIUM salts can be used medicinally through the usual channels within certain wide limits of safe dosage. When given to patients with hyperpiesis a steady fall in blood pressure occurs. In laboratory animals a large dose of emanation causes a rapid fall in blood pressure even in the normal, but under clinical conditions, with the scheme of dosage adopted in the present inquiry, the fall was not noticeable in the normal, and there was a delay of one or two days in hyperpiesis before it became so appreciable as to be outside the range of expected variations. The fall continued for many days, and the lowest figures were not reached until the end of a week or more of treatment. A fall of 50 mm. in systolic blood pressure was not uncommon, but the value never became subnormal. Unlike the evanescent effects obtained with simple vasodilators, such as nitrites, the state of lowered pressure persisted throughout the 24 hours, even on one dose daily. The fall did not occasion any malaise, or, as a rule, bring fresh cardiovascular symptoms into prominence. On the contrary, the patients experienced feelings of greater well-being, and showed an all-round improvement in general condition. When the course of treatment was suspended the pressure continued at its lower value for several weeks, but often, after a time, it began to rise again slowly. In certain cases the full advantage persisted indefinitely. In other cases, it was possible to sustain the low figure by giving an exceedingly small amount of radium every week. When partial relapse occurred, a further response to radium therapy was easily secured. There was a small proportion of patients in whom the blood pressure did not respond at all.

Dosage.

Radium, like lead, is a cumulative poison, which collects in the tissues and is slowly excreted by the bowel. It is therefore important to determine not only the daily dose adequate to produce a vascular response, but the total amount which can be used over a given period without toxic symptoms. The units *employed* are the gramme, milligramme, and microgramme, the last being one-thousandth part of a milligramme. In measuring radon or emanation the unit is the curie—namely, that amount of emanation which is in equilibrium with 1 gramme of radium.

1 curie = 1000 millicuries.
1 millicurie = 1000 microcuries.
1 microcurie = 2500 Mache units (approx.).

Solis-Cohen and Githen[13] refer to doses of 50 microgrammes of radium bromide given intravenously and 12 microgrammes by mouth. A. E. H. Pinch mentions the injection of radium salts in 7½ microgramme doses daily up to a total of 100 microgrammes. Continental workers use more conservative amounts, up to 2 microgrammes daily, and a total of 25 microgrammes in all.

In my own series of cases I have used a daily dose varying from 0·05 microgramme to 2·00 microgrammes, and a total dosage varying from 0·80 microgramme to 9·00 microgrammes, amounts far smaller than those described as safe doses by other workers, yet quite sufficient to produce striking changes in blood pressure. My impression is that the best results are obtained by injections of 1 or 2 microgrammes each, repeated every 24 or 48 hours, until the requisite effect has been secured, after which daily doses of 0·02 to 0·06 microgrammes by mouth for a few weeks.

Case.	Case history (prior to radium therapy).	Pressure *before* radium.	Duration of radium therapy in days.	Total radium chloride given.	Pressure *during* radium therapy.	Fall in pressure.
		mm.		Microg.	mm. S. D.	mm. S. D.
1	Miss A, aged 21. Intestinal toxæmia. In spite of two months' bowel lavage and diet, blood pressure persisted in neighbourhood of 180 mm.	182	1 9 16	0·05 0·45 0·80	180 110 150 101 145 95	37 15
2	Mrs. B, aged 55. Constipation, flatulent dyspepsia. Heart much enlarged. No bruits. X ray: Aorta not dilated, but long axis of heart less erect than normal.	170	30	1·50	141	29
3	Mr. C, aged 65. Angina pectoris. Very large heart. No bruits. X ray: Aorta not dilated. Careful treatment by diet, paraffin, and aperients for several years prior to radium therapy.	184	24 49 135 225	1·25 2·45 2·65 2·80	150 147 145 130	54
4	Mrs. D, aged 35. Fibrositis and indigestion. Treated by diet, paraffin, and aperients for several years prior to radium therapy.	204	50 165 305	2·50 5·00 8·50	176 167	37
5	Mrs. E, aged 55. Osteo-arthritis. On diet, paraffin, aperients, and vaccines for several years, during which the following pressures were recorded :— 1926 (195 mm., 190 mm.). 1927 (180, 190). 1929 (180). 1931 (183, 180).	S. D. 180 95	4 5 6 7	3·00 5·00 7·00 9·00	165 82 156 75 149 84 148 72	32 23
6	Mrs. F, aged 57. Diabetes mellitus. On diet, paraffin, aperients, and sedatives pressure fell from 230 mm. to 195 mm. Later readings were :— 1926 (180, 185, 180). 1927 (180, 180, 200). 1928 (220, 210). 1929 (195, 195, 209, 210).	210	75	3·95	162	48
7	Mrs. G, aged 45. Migraine and intestinal toxæmia.	240	35	1·75	190	50
8	Mr. H, aged 67. Chronic constipation. Prostatectomy at 60, since when attacks of *B. coli*, cystitis, and pyelitis. Following observations were made during careful treatment by diet, paraffin, and aperients :— 1926 (175 mm.). 1927 (176 mm.).	180	50 75	1·25 1·80	165 158	22
9	Mrs. I, aged 64. Rheumatoid arthritis, controlled for five years with diet, paraffin, aperients, and vaccines prior to radium therapy.	180	23	1·15	168	12
10	Mr. J, aged 63. Angina pectoris. Very large heart. No bruits. X ray: Some general dilatation of aorta. After several months of diet and paraffin, pressure was 152 mm. systolic.	152	23	1·15	138	14

Microg. = microgrammes. S. = systolic. D. = diastolic.

Case.	After history.	mm.	
		S.	D.
1	2½ weeks after last dose of radium .. .. 6½ „ „ „ „ „	150 135	90 80
2	12 days „ „ „ „ .. .. 2½ months „ „ „ „ „	138 120	
3	During the final period the dose was only 0·025 microgrammes weekly.		
4	3 weeks after completion of 5½ months period . 2 „ „ „ 10 „ „ ..	182 175	
5	3 weeks after last dose of radium .. .. 2 months „ „ „ „	170 158	86 87
6	4 months „ „ „ „	210	
7	6 weeks „ „ „ „	230	
8	7 „ „ „ „ „	168	
9	3 months „ „ „ „	145	

The ultimate object should be to ascertain the minimum keeping dose and the maximum interval between the individual doses or courses of treatment be m
even when nt with the maintenance of the normalised
for a considera
of emanation water is quite different.
anation lose half its strength in
The classical tre to its relatively low solubility in
azotæmic nephritis co solution after a few moments'
low protein diet, chiefly nly with special precautions

can the full strength solution be sealed in bottles, and even then much is lost later in the processes of pouring and drinking. Of the emanation which reaches the tissues very little remains unexcreted after four hours, and there is no opportunity for cumulation, which is so marked a feature when radium chloride is take internally. A much more generous scale of nominal dosage is therefore possible (e.g., 250 microcuries daily, Pinch [12]), but the effects expected are relatively much less, both in degree and in permanence.

All the cases described in the Table are examples of primary arterial trouble, varying from simple hyperpiesis in Case 1 to fairly advanced arteriosclerosis. In every instance the urine was free from albumin, and the Wassermann reaction in the blood was negative. Whether the method can be applied to syphilitic disease of the vessels or to hyperpiesis secondary to chronic nephritis remains to be shown, but some years ago W. Armstrong [1] recorded a marked fall in blood pressure in a chronic nephritic during a course of emanation water therapy. If this proves to be a constant finding it will be interesting to note whether the fall induced adds in any way to the difficulties of the damaged kidney, or whether the patient truly benefits from the change.

In this series of cases the psychic element can be excluded as a source of confusion in interpreting the readings. The patients had all been seen on many occasions prior to the institution of radium therapy—e.g., Cases 5 and 6, observed from 1926 to 1931. They were quite accustomed to the sphygmomanometer, and did not realise that any strikingly new scheme was being introduced. The effects observed were in each case additional to any which could be secured by cleansing the alimentary tract through diet, aperients, lubricants, and adsorbents, and on no occasion were nitrites or any other vasodilators used during the progress of the treatment. The points of clinical interest are:—

(1) *Dosage.*—The average amount of radium chloride used was 2·9 microgrammes, and the usual daily dose 0·05 microgramme.

(2) *Pressure reduction* varied from 12 to 54 mm. systolic, the average fall being 35 mm. Whenever records were kept of the diastolic pressure this was found to vary pari passu, but through a smaller range.

(3) *Permanence of result.*—In Case 1 the pressure continued to fall after the end of the course of treatment, and eventually, six and a half weeks after the last dose of radium, had almost reached a normal figure. Case 2 behaved in a similar manner, and a completely normal value was recorded two and a half months after the conclusion of radium therapy. Case 3 maintained a normal level on the very trivial keeping dose of 0·025 microgramme once weekly. Case 5 offers an interesting demonstration of the rapid fall in pressure which can be secured by larger doses. As a rule, the daily dose was 0·05 microgramme, but this patient was given 9·00 microgrammes in the course of a week. During this period the pressure fell almost 40 mm., and the patient felt much fitter. Cases 6 and 7 are examples of the slow relapse which sometimes occurs when the radium is omitted. In each case a further course was given, and when the blood pressure had once more fallen a small keeping dose and a suitable interval were determined which were sufficient to prevent any further relapse.

Pharmacology.

(*a*) GENERAL.

In small amounts radium acts as a cell stimulant. The redness of the skin after surface radiation and the healing of tuberculous ulceration are common examples of this action. Zarvarsin induced five-fold mitosis in the nuclear material of the hydra, and parthenogenesis has been established in certain unfertilised eggs, but overdose leads to cell death. The changes in the blood following the use of radium illustrate the importance of dosage very clearly. Small therapeutic quantities raise the red cell [1] and hæmoglobin content in anæmic states. Aubertin and Beaujard [2] have recorded true leucocytosis in several species of laboratory animal, but, as A. E. H. Pinch and J. C. Mottram have so fully recorded, radium workers exposed to toxic amounts of γ radiation become profoundly anæmic, exhibiting severe leucopenia and thrombocytopenia. In certain cases the condition has been fatal. Arsenic provides an approximate analogy, in that small amounts improve the blood picture, whilst slightly excessive and repeated doses cause atrophy of the bone-marrow with severe aplastic anæmia. These considerations need not deter us, however, from using either arsenic or radium in an appropriate manner. In each case there is a sufficiently wide margin of safety between the beneficial and the toxic dose to justify confidence in the prescription of the drug.

(*b*) RADIUM SALTS AFTER ABSORPTION.

When a soluble radium salt is injected or given by mouth the situation is somewhat complex. Radium is a heavy metal, and behaves as such in the body, becoming fixed and stored in the viscera, notably the liver and spleen. From these reservoirs it is given up slowly and excreted by the small intestine and the colon,[3, 4] also to a small extent by the kidney. This phenomenon of storage and slow excretion ensures a continuous action in contrast to the transient one of emanation alone, but it also leads to cumulative poisoning if incorrect doses and intervals are employed. The total consumption must be carefully controlled. Workers in luminous paints containing radium salts may, through the process of modelling their brushes with their lips, swallow a considerable amount of radium in the course of a year, and cases of fatal anæmia have occurred with local necrosis in the mouth and throat where particles of the material have lodged. During its passage through the body a portion of the radium is split up into α rays and radon or emanation each of which is capable of exerting a pharmacological action.

α rays are positively charged particles of atomic dimensions, unable to penetrate soft tissues for more than a fraction of a millimetre but exerting a very intense action within these limits. When unscreened radium is applied to the surface of the body only the most superficial strata come within the range of α rays but when radium is taken internally the α effects are extended to the most remote parts of the body and probably excite most of the reaction observed at inflammatory foci.

Radon is a heavy gas containing all that remains of radium after the emission of α radiation. It is sparingly soluble in water, but relatively freely in lipoids. This high lipoid solubility coefficient determines its distribution,[6] in which respect it differs widely from the radium itself, which, as already mentioned, accumulates in the liver like other heavy metals. Radon is rapidly excreted through the lungs. After the drinking of a radon solution free from radium absorption is quick, distribution follows in accordance with the lipoid solubility of the radon, and excretion is so effective that none remains in the body for more than four hours; but when radium is taken internally, radon is given off continuously by the accumulated metal, and the organism is brought under the influence of a steady stream of radon. Not only is radon turned out in the expired air, but its life as a chemical entity is a very short one, half being destroyed in about three days. By progressive disintegration it produces in series the elements radium A, B, C, &c., further α rays, and two new classes of radiation, β and γ, respectively. Radium A, B, and C have a relatively short existence, and only a few minutes in which to exert any pharmacological effect, but radium D has a long life of many years before it.

Radium D chemically is a radioactive isotrope of lead, and distributes itself in the body along identical lines. This was clearly shown by Svend Lomholt,[7] who injected radium D into experimental animals. Its distribution was mapped out by observations of the relative effect of sections of various tissues on photographic plates in the dark, and comparison made with the distribution of injected lead salts, as determined by chemical analysis. In both cases heavy deposits were found in the bones. It is interesting that at the autopsies on the cases of radium poisoning amongst luminous paint-workers, already referred to, the viscera, and in particular the bones, were strongly radioactive.[5, 8]

There seems little doubt that radium D must be taken into account when considering the pharmacological action of radium salts given in repeated doses by mouth, and it may, in part, explain the conspicuous effects produced in the treatment of chronic arthritis by this method.

γ Rays.—Distant exposure to lead-screened radium in sealed containers provides almost pure γ ray therapy. These rays classified as electro-magnetic are very penetrating and are probably responsible for the blood changes observed in radium workers. It has proved impossible to differentiate the particular activities of *β rays* from the general complex.

Since radium is re-excreted by the bowel, its action on the alimentary tract calls for special comment. J. C. Mottram,[9, 10, 11] using toxic doses, has shown that fat assimilation is interfered with seriously, also that, after an initial increase in the flow of mucus, this secretion dries up. The gland cells then degenerate, and bacteria invade the connective tissue of the villi. This is followed by desquamation and ulceration and, finally, by bacteriæmia. The period of invasion of the blood stream coincides with the onset of severe leucopenia and thrombocytopenia, but the condition is not necessarily fatal. The therapeutic range under discussion corresponds with much smaller doses, those which do not produce a pathological blood picture, but improve it. When radium is used within these limits there is no danger of alimentary upset, and the matter only becomes of practical importance in connexion with the massive doses used in the treatment of malignant disease.

(c) ACTION ON THE BLOOD-VESSELS.

Very little accurate experimental evidence is available in explanation of the clinical effects described in the earlier part of this paper, but several hypotheses can be put forward.

(1) *Diuresis.*—Radium diuresis is well known, and may be responsible for the polyuria which immediately follows the drinking of certain radioactive waters of low mineral content; a polyuria which is prompter than that induced by ordinary tap water. With increased urinary flow there are fuller opportunities for the excretion of pressor substances and for dehydration, either general, or selective for certain colloid systems, which might have a beneficial effect on blood pressure. At the present time the matter is completely indeterminate, but from my own observations I am satisfied that the fall which follows the use of radium is additional to any fall which can be secured by the simple process of flushing the system with copious and repeated draughts of plain water.

(2) *Improved condition of the vessel wall.*—Radium may diminish the actual degenerative, subinflammatory, and other lesions affecting the vessel walls. Vascular endothelium is very sensitive to the action of radium, and considerable histological research has been done in this connexion. Mild surface radiation, as used in the treatment of angeiomata, causes the endothelial cells to multiply. Fibrosis follows, and finally the occlusion of the finer blood channels. With more intense radiation, the endothelial cells vacuolate and quickly degenerate, the vessel walls become infiltrated with leucocytes, and the swelling distorts the lumen. Extravasation may occur. The doses for internal use under discussion are far smaller than those just referred to, and suitable to provoke reaction within the range conducive to healing rather than to physico-chemical trauma. In thromboangeitis obliterans, where the leucocytic infiltration and other histological changes in the arteries and veins are strongly suggestive of bacterial invasion of the vessel walls, radium chloride administered by mouth produces a marked local reaction in the affected limbs, and may for several days add substantially to the pain. This view of provocative reaction and subsequent healing is an attractive one, and, within certain limits, may be true; but it does not account for everything. For example, it does explain the rapidity with which the fall in pressure can occur and the ease with which relapse takes place if the treatment is cut short. Reaction and healing must inevitably be slow. The oscillation of blood pressure occasioned by the intermittent use of radium is too quick to be a reflection of anatomical changes in the vessel wall.

(3) *Improvement in general health.*—Whilst taking small amounts of radium patients look and feel fitter. The hæmoglobin percentage rises, and so does the red cell count. The leucopenia, with relative lymphocytosis common in toxic states, is often replaced by a normal white count, notwithstanding the fact that amongst radium workers the reverse observations have been made. It would appear to be entirely a matter of dosage, and with the doses under discussion the only blood changes observable are those of normalisation. The all-round increase in functional efficiency enables the patient to deal more effectively with all morbid processes, including those in the vessels and those associated with the primary causes.

(4) *Vasodilatation.*—Radium chloride may have a simple vasodilator action, causing, as Rouget suggests, a temporary paralysis of the contractile cells. Its storage in the liver, and the slowness of its excretion, would account for its effect being steadier and more lasting than that of nitrites. The experimental evidence on this point is not quite clear. The difficulty of completely freeing radium from soluble barium salts confuses the laboratory findings, because of the rapid and intense pressor action of the latter when injected. Moreover, compared with known vasodilator drugs, radium is admittedly slow in action, and the effect is far more conspicuous in hyperpiesis than in the normal.

Conclusions.

Future research will help us to visualise more clearly the precise mode of action of radium. In the meantime valuable advantages can be secured by using the substance medicinally. The question of dosage has been discussed and recommendations made in an earlier paragraph. The method is one of great utility and easy to apply. The only difficulties encountered have been due to reactions at inflammatory foci. These were particularly common in chronic arthritis and fibrositis, and at the time were a hindrance, although at a later date they appeared to be followed by a corresponding phase of improvement. Pain reactions also occur in thromboangeitis obliterans, and correspond with a temporary aggravation in the symptoms of partial occlusion. If such a condition is suspected, even in a larval form, great caution should be used in the early stages of radium therapy. Finally, it would be unwise to neglect other general schemes of treatment based on what appears, after careful clinical examination, to be the pathogenesis of each particular patient's syndrome. It is especially important to rid him of sepsis and to cleanse his alimentary tract by simplifying his diet, aiding digestion, speeding up evacuation, and protecting him with adsorbents from the effects of toxic substances produced in his bowel. If general treatment of this kind is instituted in the first place and kept up in a modified way afterwards, the patient will be put in the best position to reap the fullest benefits from the additional reduction in pressure secured by radium therapy.

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(*Continued at foot of opposite page.*)

MASSIVE COLLAPSE OF THE LUNG

WITH NOTES ON A POST-TRAUMATIC CASE.

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MASSIVE collapse of the lung is of interest whenever it is encountered, not merely because of its relative rarity in civil practice—apart from the post-operative cases—but also because any one case may add a little to our knowledge of its ætiology.

William Pasteur[1] first defined it as "a total deflation (as opposed to lobular or patchy collapse) of a large area of lung tissue, of sudden onset," and considered that it occurred "in the absence of obstruction of the airway or of any known cause of compression—due to failure of inspiratory power." Cases have since been recorded in association with such diverse conditions as acute poliomyelitis, diphtheria, pulmonary tuberculosis following hæmoptysis, pneumonia, bronchitis, penetrating and non-penetrating wounds of the chest, thyroidectomy, injuries to the spine and fracture of the pelvis, and as a result of lipiodol injection into the trachea, to say nothing of the post-operative cases.

The condition is recognised clinically by its characteristic physical signs: immobility of the chest and dullness to percussion over the collapsed lobe or lobes, with absent or bronchial breathing and displacement of the mediastinum towards the affected side. Radiographically it is shown by a dense opacity of the lobe or lobes, together with marked displacement of the mediastinum and trachea towards the affected side, elevation of the diaphragm and narrowing of the rib interspaces, so that the hemithorax on the side of the lesion is considerably reduced in size.

What is the underlying mechanism? Does the lung collapse actively by the contraction of its intrinsic bronchial musculature, and do the diaphragm, chest wall, and mediastinum passively accommodate themselves to the new pressure relationships? Is there bronchial or bronchiolar obstruction leading to absorption of the air distal to the obstruction and secondary displacement of the diaphragm, chest wall, and mediastinum? Or is there a condition of paralysis of the external muscles of respiration which induces a passive lobar collapse of the underlying lung?

ÆTIOLOGICAL THEORIES.

Experimentally, massive atelectatic collapse has been caused by introducing a rubber balloon into the bronchus of a dog. This was filled with an opaque medium and the bronchus thereby occluded. Under the X ray screen the collapse was observed to be a gradual process, and fully developed only after an interval of six hours. When, however, the lungs were inflated with oxygen instead of air, the collapse was complete half an hour after the balloon had been inserted. As long ago as 1879, Lichtheim showed that, if the blood-vessels supplying the area of lung distal to the plugged bronchus were tied, no collapse ensued. Clearly, such an artificially produced atelectasis is dependent on absorption, via the blood-vessels, of the air behind the obstructed bronchus; the more rapid absorption of oxygen than air is readily understood.

Elliott and Dingley[2] divided one phrenic nerve and hemisected the cord on the same side at the level of the second and third cervical segments in order to paralyse the diaphragm and intercostals, but this procedure did not bring about collapse of the lung. They concluded that in the post-operative cases the bronchioles became obstructed with inflammatory œdema and mucus, and that the air was absorbed behind the obstructed lumen.

Charlton Briscoe,[4] however, is very emphatic that an obstructed bronchus is by no means always found post mortem, and stresses the importance of the position of the diaphragm as the effect of posture; he concludes that in post-operative cases the collapse is produced by an inflammatory process of the crus and one-half of the diaphragm or pleural membrane covering it. In a more recent communication[8] he considers it to be due to a combination of simple deflation and an attack of acute pleurisy. Simple deflation, he says, occurs as a result of the ascent of the diaphragm which accompanies the assumption of the supine position. Here it is difficult to agree since, as A. E. Barclay[9] has pointed out and we ourselves at the hospital have also observed, there is very little difference radiographically between the position and excursions of the diaphragm in the supine and in the erect state.

Rose Bradford[3] invokes reflex spasm of the bronchioles as the determining factor, whilst Regan,[5] in support of this theory, reports a case in association with acute poliomyelitis, and considers that the diaphragmatic displacement is secondary to active *contraction in* the lung parenchyma.

Jacobaeus[6] observes that, during the phase of atelectatic collapse which may follow lipiodol injection into the trachea, the bronchi are narrower than afterwards, when the collapse has disappeared. He notes too that those lungs which underwent massive collapse after lipiodol injection did so within a quarter of an hour of the operation, that is, long before the air or even pure oxygen alone would have had time to be absorbed, and that they were invariably normal lungs, the bronchi of which had not lost their contractility. Apparently there are at any rate two factors at work in this class of case: bronchial obstruction and active contraction of the bronchial muscles, and the collapse occurs earlier than could be accounted for by bronchial obstruction alone.

Woodburn Morison[7] considers that "there is a reflex disturbance of the sympathetic and vagus innervation of the lungs, resulting first in dilatation of bronchi with cessation of wave-like movement and a consequent accumulation of mucus." This he regards as due to an overacting sympathetic, and points in support to the rise in temperature, which so often occurs. "The balance between the sympathetic and vagus may be quickly restored, and the condition rapidly clear up with the return of cough and expectoration of mucus. On the other hand, as the overaction of the sympathetic passes off, the vagus may reassert itself too strongly and cause a

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(Continued from previous page.)

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sudden spasm of the musculature involving a whole lung or a whole lobe of a lung."

CASE RECORD.

The case we wish to describe is, we believe, of special interest because it is associated with a compression fracture of the lumbar spine in the immediate neighbourhood of the origin of the crus of the left diaphragm.

A coal-miner, aged 25, was admitted to the hospital as a surgical emergency, complaining of pain in the back and over the left side of the chest. In the course of his work as a miner on Jan. 5th, 1931, at 5.15 P.M., he was riding on a tub along a low-roofed passage. He suddenly noticed a cross-beam, and in trying to avoid this he arched his back; the lower dorsal region, however, came into violent contact with the beam, and he fell against the tub in front. With the help of two companions he was able to walk a few hundred yards to the cage and was brought to hospital by ambulance.

On examination at 7.30 P.M. there was no external evidence of injury, with the exception of a small bruise in the region of the twelfth dorsal vertebra. He complained of acute pain here, and also over the left fifth and sixth ribs in front. These two painful areas were tender on palpation: a provisional diagnosis of injury to the twelfth dorsal vertebra, and (?) injury to the fifth and sixth left ribs was made. There were no abnormal physical signs in the chest. Next day he appeared fairly comfortable until 6 P.M. when, without any warning, he became alarmingly ill. He was severely dyspnœic and cyanosed. Respirations were shallow but not markedly increased in frequency. Deep inspirations caused severe pain in the left chest. The temperature was 102°, the pulse-rate 134, and the respiration-rate 26. He had a troublesome cough, and the sputum was mucoid; it was not flecked with blood or of a rusty character.

Movement of the left chest was almost imperceptible; on the right it appeared exaggerated. The cardiac impulse was diffused over the third, fourth, and fifth interspaces, and the apex-beat was 1½ in. to the left of the nipple line. Palpation confirmed the position of the apex-beat and the relative immobility of the left chest. Percussion revealed impairment of the whole of the left chest, more marked at the base than higher up. The right chest was hyper-resonant. Breath sounds were absent at the left base and the left axilla, and very weak in the upper zone. Exaggerated breath sounds, almost bronchial in type, were found in the right upper zone; lower down on this side they appeared normal, save for an occasional râle in the middle zone. The feature of primary importance was undoubtedly the displacement of the heart towards the dull left hemithorax.

Jan. 7th.—Temperature was normal; pulse-rate, 106; respiration-rate, 22.

8th.—Temperature was normal; pulse-rate, 88; respiration-rate, 22.

10th.—The physical signs in the chest were much the same, though less marked. The apex-beat, though less displaced, was still outside the nipple line. The dulness and absent breath sounds were limited to the lower axilla and base, though the upper zones were distinctly less resonant than on the other side. A diagnosis of massive collapse of the left lung was made. A radiogram taken on this day showed a typical massive collapse of the left lung, in which re-expansion had already begun in the peripheral parts of the upper two zones. The skiagram of the dorsal spine showed no fracture.

17th.—Physical signs were normal and X ray showed the left lung to have completely re-expanded.

A few days later he was discharged. On Feb. 4th he came up to the surgical out-patients with the signs of a fractured lumbar spine and was readmitted. Radiography showed a fracture-dislocation of the lumbar spine involving compression of the left antero-lateral region of the second lumbar vertebra, fracture of the right transverse processes of the second and third lumbar vertebræ, and an area of callus on the right side of the second lumbar vertebra. (It is clear that he had had a fractured lumbar spine on his first admission, but there had been no deformity then, his pain and tenderness had been higher up, and the radiogram of the dorsal spine had just missed the second lumbar vertebra.) The main incidence of the damage was at the left antero-lateral part of the second lumbar vertebra—the very region where the left crus of the diaphragm takes its origin. But experimentally, and as a result of phrenicotomy in man, paralysis of one-half of the diaphragm does not induce massive collapse of the homolateral lung, and it is difficult to see how complete avulsion, even of the crus, could have done more than paralyse the diaphragm.

It would seem then that, although we have good circumstantial evidence of trauma to the crus of the diaphragm, we cannot consider the collapse of the lung to be due to it and to it alone. Since, however, the sympathetic chain actually pierces the crus, it would not be unreasonable to suppose that it was implicated and that the balance between the sympathetic and vagus innervation of the lungs, as suggested by Woodburn Morison, was upset. During the long latent period—24 hours—between the accident and the collapse of the lung, the sympathetic may have been overacting, as evinced by the accumulation of mucus and the rise in temperature. Then suddenly the vagus took the upper hand, the musculature of the bronchi and parenchyma of the left lung went into spasm, and massive collapse of the lung resulted.

We thank Prof. Graham Simpson for permission to publish this case and for his help and suggestions and Dr. J. L. A. Grout for his assistance with the radiograms.

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HEREDITARY ASPECTS OF LEBER'S OPTIC ATROPHY.*

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IN the human, the female somatic cells have two sex chromosomes (X X) one from each parental germ cell, while the male somatic cell contains only one X-chromosome. This X-chromosome in the male cell is derived from the egg, and is associated with a Y-chromosome, derived from the sperm, which carries few active genes. A sex-linked disease is considered to depend on the presence of a factor resident in the X-chromosomes, which usually is recessive and therefore appears much more frequently in the male, possessing only one X-chromosome, than in the female, possessing two. The sex-linked trait can only become manifest in the female if for some reason the factor becomes dominant, or if both X-chromosomes carry the recessive factor. If he sex-linked disease is dependent on a single X-chromosome-borne factor, the following mode of inheritance is expected :—

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* Abridged from a paper read before the Annual Congress of the Ophthalmological Society of the United Kingdom, 1931. This will be published in full in the Transactions of the Society.

1. With a carrier mother and normal father 50 per cent. of the sons should be affected; all the daughters should be normal but 50 per cent. carriers.

2. With a normal mother and affected father, all the sons and daughters should be normal, but half the daughters should be carriers. There would be no transmission through sons.

3. With an affected father and affected mother all sons and daughters should be affected.

4. With an affected mother and normal father all the sons should be affected, and all the daughters should be normal, but carriers.

It would also be expected that affected females would be 1/200 as common as affected males—as has been pointed out by C. B. Davenport (1930).

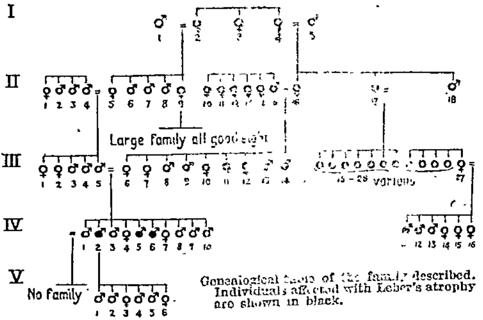
With a view to formulating the mode of inheritance in human sex-linked diseases, the diseases most extensively studied have been hæmophilia, colour-blindness, and hereditary optic atrophy or Leber's disease. None of them appears uniformly to follow the rules of inheritance of a single recessive character. Certain of the exceptions to the rules can be explained without discarding the single factor theory. For example, the scarcity of female cases in hæmophilic families may be due to death in utero, while the unexpectedly large number of female cases of colour-blindness and Leber's atrophy may be due to the factor becoming dominant in females who are only heterozygous, and who ought, according to the rule, to act only as carriers, without any manifestation in themselves of the disease. Exception to rules 3 and 4 might also be due to the factor having become dominant in a heterozygous female—the affected mother in those instances. Other departures cannot, however, be so easily explained. Thus in Leber's disease an affected male rarely has affected grandsons. R. Kawakami (1926), in examining the pedigrees of affected males, found that only 7 per cent. of the maternal grandfathers were affected. On the other hand, 40 per cent. of the maternal grandfathers in colour-blindness were found to be colour-blind. He also found that in Leber's disease the tendency of the disease factor to become dominant varies in different races.

Many pedigrees of families affected by sex-linked diseases have been reported which show other aberrant features in the mode of inheritance.

From the foregoing it is apparent that the mode of inheritance is not the same in the various sex-linked diseases. Further, the variations observed in many of the pedigrees suggest that, in some strains at least, an accessory factor is concerned in the development of the disease. The pedigree in the cases of Leber's optic atrophy here reported supports this view.

A FAMILY HISTORY.

I have to report four cases in an Orcadian family, all in the same generation (see Figure). Their parents were second cousins. The first (IV., 2) was a man of 40 who suffered from failing vision and pains in the legs. He had a large central scotoma and the discs were blue-grey, with sharply outlined edges and prominent lamina cribosa. The patient was unable to converge, but no other abnormalities were found in the eyes or in the rest of the body. The second patient, a brother of the first (IV., 5) was a man of 37 with similar symptoms and signs. A third brother (IV., 6), aged 35, first complained of headaches and dimness of vision in 1930, 13 years after the first case, and his vision failed so rapidly that he had to give up work three weeks later. The fourth case was a man, aged 41 (IV., 11), a second cousin of the other three. His eyesight became affected quite suddenly when he was 20 and he is unable to read, but can work on the farm.



Genealogical table of the family described. Individuals affected with Leber's atrophy are shown in black.

The present generation (IV.) is now round about 40 years of age; three are dead, but had good eyesight. Of the remainder the sight is good in seven and defective in Nos. 2, 5, 6, 9, 11. The eyesight is good in all the children of No. 2 (generation V.); their ages range from 2 to 17.

The family live on a small island and have a remarkable knowledge of their forbears. Many of the particulars have been confirmed by inquiry from more than one witness.

DISCUSSION.

The special interest in the history of this family lies in the appearance of three cases in the generation following consanguineous mating. Although the information available with regard to the three preceding generations gives no definite indication of the presence of the disease, the occurrence of those cases provides strong presumptive evidence that the original stock bore a trait of the malady. This supposition is supported by the occurrence of Case (IV.) 11, who is a direct descendant of the common stock through the female line.

According to the accepted theories of inheritance, consanguinity can only increase the incidence of a familial disease if both parents carry the disease factor. In sex-linked disease, however, the male does not carry the factor when he himself is free from the disease, and therefore a consanguineous mating should not increase the risk to the offspring if the father is unaffected. Actually, in the sibship in which the first three cases occur, the proportion of cases affected is that which is expected when the mother is a carrier and the father a normal male. In tracing the disease factor in the pedigree under consideration, not only must the mothers (III.) 6 and (III.) 27 of the affected persons be considered carriers, but also their female ancestors (II.) 16 and 17, and (I.) 4. Why then was there no case of the disease among the male children of these, and in particular among the children of (II.) 16 and 17? It would, for example, be expected that some of the males (III., 8, 9, 13, and 14) would be affected. We find on the contrary that all of these reached old age, and enjoyed good eyesight, with the possible exception of Case (III.) 14. Cases (III.) 8 and 9 are both alive, aged respectively 73 and 70, and have excellent eyesight. Case (III.) 13 also had good eyesight, and died, of heart and kidney disease, when aged 75. Case (III.) 14 died in a similar way at the age of 76. His eyesight was good until the age of 60 when it suddenly became bad. Thereafter he was unable to read but continued to work on his farm. No further information is obtainable about his case, but it is possible that this was one of the rare cases of Leber's disease developing late in life.

The fact that the cases under consideration appeared in the children of a consanguineous mating might indicate that a second factor, not sex-linked, and multiplied by the consanguinity, was concerned in the manifestation of the disease. This, however, is unlikely, in view of the fact that ·50 per cent. of possible males in the sibship are affected, so that the mutation of a single factor only need be considered in order to account for the cases occurring.

The other possibility is that consanguinity has reduced the general vigour of the stock in some way, bringing about the result that a dormant trait has manifested itself again. The health record in the preceding generations is therefore a matter of interest. We find that in Generation I. all lived to an "old age" with the exception of one who died in infancy. In Generation II., one died in infancy, two of "old age," and the 12 of the remaining 15 about whom particulars are available, lived to an average age of 78. All had good eyesight. In Generation III., 1–14, four died in infancy, three died at the ages respectively of 44, 75, and 76, while seven are alive of an average age of 72. These particulars point to the stock having been exceptionally healthy, and this fact might reasonably be regarded as connected with the immunity from the disease which the earlier generations enjoyed. It seems probable that consanguinity, by reducing the vigour of the stock, [illegible] undone the achievements of the preceding generations in subduing the disease tendency.

This possibility is all the more reasonable when we consider that Leber's disease, alone among diseases of this group, shows no evidence of its presence until many years after birth, and may indeed be classed as an inherited tissue vulnerability, being thus a condition likely to be affected by the general vigour of the stock.

I am indebted to Prof. Edwin Bramwell for permission to publish two of the cases and to Dr. W. C. Souter, of Aberdeen, for notes of a third. I am also indebted to Prof. F. A. E. Crew for assistance with regard to the hereditary aspects of the cases. I am in receipt of a grant from the Medical Research Council.

QUEEN'S NURSES CONTRIBUTARY SCHEME.—A scheme has been launched at Brighton which is said to and [illegible] necessary for the continuance of the Queen's nurses [illegible] and Hove. It has been organised on lines resonant

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ON THE CHEMICAL NATURE OF PELLAGRA TOXIN

AND THE THIOSULPHATE TREATMENT OF PELLAGRA*

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IF an apple or a potato is cut across and left for some time in the atmosphere the cut surface will soon be coloured. In other words, something uncoloured in the juice has been oxidised in the air by a ferment to form pigment. The nature of this uncoloured substance, or the mother substance of pigment, was long a matter of dispute, until it was at last proved to belong to the phenyl group and to be practically indistinguishable from tyrosine (oxyphenylalanine), which, in the presence of a specific ferment—oxydase—changes to a coloured end-product similar in every respect to vegetable pigment.

A similar process has been observed in the animal kingdom—e.g., in the ink-fish. A specific ferment for tyrosine, called tyrosinase, has been found by Fürth and Prizbram[1] in the ink-glands of this fish; it has the power of changing the colourless tyrosine (which is an intermediate product of metabolism of this fish) to an inky secretion. This can be experimentally proved in a test-tube by adding some extract of the ink-glands to a solution of tyrosine, when we get at once a yellowish-orange-red colour which later turns to black.

Hence we have the important fact that two factors are essential for the manufacture of pigment—namely, a mother substance of the phenyl group, allied to tyrosine, and a specific ferment (oxydase) which oxidises this uncoloured substance to a coloured end-product.

B. Bloch[2] applied these phenomena to human beings. In a treatise of absorbing interest, he expounds his "dopa" reaction, which proves beyond doubt that human pigment (melanin) is also formed from a mother substance by a ferment.

Bloch placed pieces of living skin in different solutions of aromatic compounds—e.g., tyrosine, adrenalin, and tryptophan, and also in a solution of "dopa" which he prepared from the vegetating seeds of beans (*Vicia faba*), where they are found as intermediate products of protein metabolism. He next prepared frozen sections from these pieces of skin and found that only those placed in the dopa solution had shown any reaction. The basal cells, the cells of the stratum spinosum, the epithelium of the follicles, the outer hair cuticle, and the cells of the hair matrix all showed collections of black granules in varying quantity which, both in shape and size, resemble melanin.

Dopa differs from tyrosine only in that it contains two hydroxyl groups instead of one—i.e., it is a dioxyphenylalanine. Bloch concluded (1) that in human skin there must be an oxidising ferment which, owing to its specific action on dopa compounds, he called "dopa oxydase," and which is present wherever melanin is formed; (2) that melanin is made from a mother substance which is chemically a dioxyphenylalanine.

From these conclusions of Bloch's I have formulated my view on the chemical nature of pellagra toxin. We know that the characteristic pigmentation of pellagra is an invariable concomitant of the disease. We know, further, that pellagra is a *toxæmia*. The inference to be drawn from this combination of circumstances is that the toxin of pellagra, be its origin what it may, must be related to this hyperpigmentation. It must be the initiator of the extra pigmentation, and cannot differ materially from the mother substance of pigment itself. In other words, the pellagra toxin must be a dioxyphenylalanine.

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* Based on a paper read before a conference held by the Egyptian Medical Association and the Society of Hygiene and Tropical Medicine of Egypt on May 15th, 1931.

[1] See Kyrle, J.: Histo-Biologie der Haut und ihrer Erkrankungen, Vienna and Berlin, 1925, vol. i., p. 81.

[2] See Kyrle: Op. cit.

In pellagra the hyperpigmentation is more or less localised in the exposed parts of the body. This phenomenon is easily explained in view of the power of light as a strong stimulant of pigment formation, as in sunburn. The fact that light also stimulates hyperpigmentation in pellagra is further evidence that the mother substance of pigment and the toxin of pellagra are not unlike.

THE CHOICE OF THIOSULPHATE.

In selecting a substance possessing the greatest chance of success in the treatment of such a disease as pellagra I naturally aimed at a non-toxic drug which, while it possessed powerful parasitic and germicidal properties, also possessed an affinity for the pellagra toxin. The idea was that such affinity would lead through chemical combination to the ultimate destruction or disintegration of the toxic substance. My choice of thiosulphate was based on the hope that it fulfilled these combined properties. It is a salt of extraordinary behaviour, its properties being numerous and varied. Its power of liberating sulphur dioxide and hydrogen indicate it at once as a powerful parasiticide and germicide. Indeed, so powerful are these substances in their effect that it is inconceivable that the pellagra organism, should one exist, could survive exposure to them. But even more important than this is the supposed affinity of thiosulphate for dioxyphenylalanine. Here I admit I was on ground less sure. I had no data which rendered such affinity a legitimate expectation. At the same time I knew I was dealing with a substance which, notwithstanding its varied uses in industry, had never been explored by medical science. I knew, further, that this substance was possessed of divergent and unexpected properties.

My next step was to find out what becomes of sodium thiosulphate in the blood. To this end I carried out the following experiments:—

1. I took blood and urine from A., who had taken 40 injections of 10 c.cm. of 10 per cent. solution of sodium thiosulphate; B., who had taken 16 injections of 10 c.cm. of 10 per cent. solution of sodium thiosulphate; and C., who had taken 10 injections of 10 c.cm. of 10 per cent. solution of sodium thiosulphate. Not a trace of thiosulphate could be detected in the blood, while the urine was loaded with it.[1]

2. I took samples of blood and urine, one of each, from D., who had taken 10 mg. of thiosulphate; E., who had taken 8 mg. of thiosulphate; F., who had taken 12 mg., 15 and 30 minutes respectively after the last injection. The thiosulphate could be detected in both blood and urine.

3. I took a sample of blood and one of urine from G., who had taken only one injection of 10 c.cm. half an hour after the injection. This was repeated half an hour later. Thiosulphate could be detected in the first sample of blood but not in the second.

From these experiments we may conclude that thiosulphate does not remain long in the blood. In all probability part of it either disintegrates or combines with other substances, and most of the remainder is quickly eliminated by the kidneys.

The following experiment was next performed with a view to ascertaining whether or no any changes took place in vitro:—

A known quantity of thiosulphate was added to 15 c.cm. of blood taken from a pellagra patient and put in the incubator at 37° C. for 24 hours. Almost all the salt was recovered from the blood.

ÆTIOLOGY OF PELLAGRA.

The vitamin theory is now in the forefront; I must say that I contest this theory from top to bottom. If the disease were due to lack of vitamins it would not be possible to obtain such remarkable improvement as that which follows thiosulphate treatment within a relatively short time. No disease due to vitamin deficiency has ever been known to improve without the administration of the lacking vitamin, and certainly not from the mere introduction of a drug which, from the nature of its preparation, cannot possibly contain any vitamin.

The maize theory, on the other hand, can readily be reconciled with my view on the pellagra toxin. That theory ascribes the disease to a limited maize diet. In support of it, evidence was brought forward to show (1) that pellagra was prevalent in maize-consuming countries; (2) that the introduction of maize into Europe synchronised with the appearance of pellagra for the first time in the continent. This theory gives us no details concerning the causal relation between maize and pellagra, beyond the supposition that a pellagra toxin exists in maize; so far as I am aware, however, that toxin has never been identified.

I would here recall to mind Bloch's researches, which led him to recover dopa from vegetating seeds of beans (*Vicia faba*), and I would suggest that it is not improbable that there may be a substance of a similar chemical nature in the seeds of maize. I say that pellagra toxin is of such a chemical nature that it may occur in maize or in any other cereal, and that, in fact, it occurs in a specific cereal—namely, beans. Until dopa is isolated from maize also, the right thing, in my opinion, is to substitute a "bean" theory for a "maize" theory. It is a matter of common observation that maize-consuming countries happen also to be bean-consuming countries. Further, in Egypt at any rate, maize is only consumed in the villages, but pellagra is almost as prevalent in cities as in the country, and cities are notorious bean-consumers. As a matter of fact, it is not very important to insist on a bean-theory or a maize-theory, or any other cereal theory. All these so-called theories are really so many extensions of one main theory which I may conveniently christen the "dopa theory."

The parasite theory is equally reconcilable with my view on pellagra toxin, for the suspected organism may well convert something in our metabolism into the dioxyphenylalanine which produces the disease.

RESULTS OF THIOSULPHATE TREATMENT.

In any case, whether we hold the view that pellagra is a disease caused by dopa or by an organism, the merits of thiosulphate as an agent capable of counteracting these factors have been amply proved. The skin lesions are aborted in the early cases after a few injections, and disappear very quickly in the late and lingering cases, instead of lasting a whole season or even a whole year. It is very gratifying to note the quickness with which the gangrenous limbs (sometimes occurring as a late manifestation of this disease) completely heal up. The diarrhœa, which is a very persistent and most distressing symptom, which does not easily yield to any treatment even in early cases, altogether stops after a few injections in the non-advanced cases. In the advanced ones a distinct amelioration occurs. After a few injections the number of stools drops from 12 or 20 to four or six. The gastric symptoms cease before the treatment is over. The marasmus, the insomnia, and the melancholia soon improve, and the patients, who doubtless would otherwise have succumbed, not only survive but also add weight and vigour.

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[1] The method of examining blood was as follows: 5 c.cm. of blood are taken from the patient and oxalated to prevent coagulation. These are then well mixed with 5 c.cm. of trichloracetic acid to precipitate all proteins. To the filtrate 1 c.cm. of 1 per cent. starch solution is added as an indicator, and this is then titrated with N/100 iodine solution. The thiosulphate is indicated if a drop of N/100 iodine solution gives a blue coloration. The method of examining the urine was as follows: 10 c.cm. of urine are added to 1 c.cm. of 5 per cent. lead acetate to eliminate all urates. 1 c.cm. of 1 per cent. starch solution is added to the filtrate and titrated with N/10 iodine solution as in blood.

One thing of particular interest is that, with two exceptions, the 32 patients treated last year did not turn up this year, in spite of Dr. Abdel-Rahman Bey's endeavour to get them to give us a call. The two patients who came were: (1) one who, on examination, was found to be entirely free of the disease; (2) one who had a slight relapse—a course of 15 injections was sufficient to bring matters back to normal. Failure to attend the hospital in all probability means that the patients treated last year did not get a recurrence.

During the present year I have so far had 24 cases under treatment. My method is to give a daily intravenous injection of 10 c.cm. of a 10 per cent. solution of sodium thiosulphate, sterilised in an autoclave. The number of injections required varies, according to the case, from 20 to 60. There are no complications or contra-indications whatsoever.

My thanks are due to my director and chief, Dr. Abdel-Rahman Bey Omar, who has taken immense interest in this subject and has been kind enough to give me all possible assistance. Also to my brother, Dr. Mohamed Sabry, chemist of the municipal laboratories, who has carried out all the chemical experiments and analyses connected with the present research.

CLINICAL AND LABORATORY NOTES

CASE OF PERNICIOUS ANÆMIA TREATED BY INJECTION OF A LIVER EXTRACT.

By William Campbell Anderson, B.Sc., M.D. Aberd., D.P.H.,

LATE PHYSICIAN TO THE NEUROLOGICAL DEPARTMENT OF THE MINISTRY OF PENSIONS, WALES.

Up to the other day it was thought that some cases of pernicious anæmia are resistant to liver, liver extracts, or hog's stomach extract. The case described below I had intended to publish as "hepato-resistant," but on July 25th, 1931, I tried a recently issued preparation (Hepatex P.A.F.) which has altered its complexion, and appears to have resuscitated the patient, who was evidently dying, to a state well on the way to recovery.

The case is that of a man, aged 71 years, who has lived a healthy, outdoor life, and has been an abstainer and non-smoker. The only suggestion of trouble he has ever had has been his diet, with which he always had to be careful; the slightest deviation from his domestic diet, such as a glass of wine and tobacco-smoke at a function, would thoroughly upset him. The disease was presumably well established before he called in medical aid, for his friends for the last two years have remarked that he was looking pale; but as he felt no pain he just carried on. I was called in ultimately to see him for what was a complication of the complaint—namely, mild nephritis with some bronchial trouble, which yielded in due time to treatment. As his pallor began to get somewhat marked, with lemon tint, on May 12th he was put on liver in the usual daily doses, and a little later hog's stomach extract, glycerin of pepsin, and hydrochloric acid. (Examination of stomach contents revealed no free HCl.) On May 14th the blood-count was as follows:—

Red cells	1,545,000	Polymorphs	38%
White cells ..	2,000	Lymphocytes ..	50%
Hæmoglobin ..	40%	Large mononucl. ..	12%
Colour-index ..	1·3		

Eve's halometer, 42. No megaloblasts, but four normoblasts seen. Marked anisocytosis, moderate poikilocytosis, very occasional polychromasia.

On June 13th the red cells had fallen to 1,140,000 and the hæmoglobin to 25 per cent. The temperature was 100° to 101° F., and the pulse-rate 110 to 140. The patient had tried to persevere with expressed liver juice, together with orange or lemon juice, but had been obliged to discontinue it because of nausea.

On July 25th treatment by Hepatex P.A.F. began, and after three weeks' daily injections of 5 c.cm. (equal to 100 g. fresh liver) he was a different man. The first two injections were intravenous, at an interval of four days, but subsequently they were intramuscular. Even after the first injection a favourable response was noted, and by August 8th the blood-count was as follows:—

Red cells	1,720,000	Polymorphs	30%
White cells ..	2,000	Lymphocytes ..	55%
Hb.	40%	Large mononucl. ..	10%
C.I.	1·1	Eosinophils	5%

Anisocytosis marked but poikilocytosis almost absent; reticulocytes fairly numerous.

After the second injection, on July 28th, the pulse-rate fell to 90, and the bad condition of the heart, which seemed likely to end his life, has improved ever since. The pulse-rate is now 72–80 per minute, and regular; the heart sounds are normal, whereas before they were rapid and irregular with a soft murmur at the apex. On Sept. 24th the following blood-count was obtained:—

Red cells, 2,700,000; white cells, 2000; hæmoglobin, 52 per cent.; and colour-index, 0·96; Eve's halometer 43·5 (normal = 45). Anisocytosis +, poikilocytosis slight, no nucleated red cells seen.

The latest blood-count (Nov. 1st) is as follows:—

Red cells, 3,000,000; white cells, 2700; hæmoglobin, 55 per cent.; halometer practically normal; poikilocytosis very little.

The patient is now able to get about.

I have to thank Dr. H. A. Schölberg, pathologist to the Cardiff Royal Infirmary, for the blood examinations.

A CASE OF CHARCOT'S DISEASE IN JOINTS NOT COMMONLY AFFECTED.

By L. I. M. Castleden, M.D. Lond.,

ASSISTANT MEDICAL OFFICER, HIGHGATE HOSPITAL.

Charcot's disease, the neuropathic arthropathy of tabes dorsalis, of which a hypertrophic and atrophic variety is described, occurs usually as a monarticular arthritis of the large joints, those of the lower extremity being more frequently involved than those of the upper. More than one joint may be involved at the same time, but whatever the combination it s commonly the large joints which suffer. In the following case the small joints of the upper limbs were affected bilaterally.

CASE RECORD.

A general labourer, aged 55, was admitted to Highgate Hospital on Jan. 7th last, complaining of swelling and weakness of the right knee, which was first noticed three weeks previously after an attack of sharp shooting pains in both legs. There was no pain in the affected knee and it was inability to control it when walking which compelled him to come for advice.

Past history.—Troublesome ulcers on the soles of both feet off and on for several years. Was rejected for war service on account of his heart and of the condition of his hands which he stated had been present, though in a less marked degree, since before 1914. No history of "rheumatism" or "arthritis." Recently had experienced slight difficulty in starting micturition.

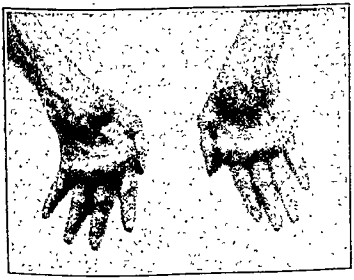
Condition on examination.—A thin pale man with bilateral ptosis more marked on the left. Mouth normal except for several carious teeth. The apex-beat and the left border of the heart were situated four inches from the midline in the fifth left space, and there was a soft systolic bruit in the mitral area conducted a little way towards the left axilla. No other abnormality was detected in the cardiovascular system, the pulse and radial artery being normal and the blood pressure 144/80. Examination of the lungs and abdomen revealed no abnormality.

The patient had a typical Charcot's knee on the right side with a good deal of abnormal mobility, but no dislocation of the joint. Perforating ulcers were present on the soles of both feet. Both wrist-joints showed partial dislocation of the carpus towards the flexor aspect of the limb and ulnar deviation of the hand (Fig. 1). There was also a varying degree of forward displacement and ulnar deviation of the phalanges at the metacarpo-phalangeal joints. The extensor aspect of both wrist-joints and of all the metacarpo-phalangeal joints presented a soft, puffy, fluctuant swelling. The first interphalangeal joints of the middle and ring fingers of both hands presented the same changes to a less degree. All the affected joints were abnormally mobile in all directions, palpation and movement both active and passive being quite painless. The patient was definite that at no time had he experienced any pain in his wrists or hands.

All other joints were normal.

Examination of the central nervous system revealed typical Argyll Robertson pupils with normal fundi. There was diminution of sensation to light touch and pinprick in the fourth and fifth dorsal and fourth and fifth lumbar and first sacral segments. Sensation and reflexes were normal in the arms. Both knee-jerks and both ankle-jerks were absent. The plantar responses were flexor.

FIG. 1.



Photograph of the patient's hands, illustrating the deformity described.

The blood Wassermann reaction was ++ ("strong positive").

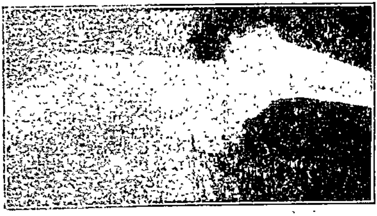
Radiographic report.—"Wrists: Destruction at radio-carpal and radio-ulnar joints, more marked on the right side, with pathological dislocation (Fig. 2). Metacarpo-phalangeal joints: Changes also more marked on the right side with pathological dislocation. Some involvement of interphalangeal joints, especially of ring fingers on both sides. The changes in all the joints are those of Charcot's disease."

Course.—Under antisyphilitic treatment the right knee rapidly improved and there was also diminution in the size of the swelling of the wrist and metacarpo-phalangeal joints.

DISCUSSION.

This case illustrates the possibility of tabetic arthritis of the small joints of the upper extremity, a type of lesion commoner in syringomyelia which can be excluded by the absence of the characteristic sensory changes.

FIG. 2.



Radiogram of right hand showing destruction and pathological dislocation of wrist and metacarpo-phalangeal joints.

Somewhat similar to Charcot's disease is the chronic arthritis met with in many of the conditions where the nerve-supply to a limb is impaired as the result of central or peripheral disease of the nervous system. Thus it may follow spina bifida, hemi- or para-plegia of central or spinal origin, or may be secondary to peripheral neuritis due to injury, syphilis, gout, diabetes, lead, alcohol, or leprosy. In all of these there would be a characteristic nerve lesion. When the hand or foot is involved it is usually the terminal articulations of the fingers or toes which are affected (acro-arthritis) the joints becoming swollen and painful and later ankylosed.

The atrophic form of rheumatoid arthritis is usually preceded by an acute or exudative stage of which there is no history, there is also as a rule contracture with fixation of the affected joints.

Many authors believe that tabetic arthritis is a form of arthritis deformans. Barth stated that in the latter disease there was always a trophic nerve lesion. Charcot himself ascribed the changes of tabetic arthritis to damage of the trophic nerves supplying the joint, whilst Kienbock, who first distinguished the hypertrophic and atrophic forms of the disease, thought that they were due to fractures which resulted from the complete analgesia and rarefaction of the bone.

Where many small joints of the upper limb are involved, as in the case quoted above, it is more likely that a trophic rather than a traumatic factor is operative, and it is interesting to observe that in tabes dorsalis as well as in syringomyelia, in which diseases a trophic lesion is most probably present, a picture simulating a form of arthritis deformans can be produced.

I am indebted to Dr. Edith Hope and Mr. J. M. B. King for the photographs and report from the radiological department of this hospital, and to Dr. C. Thackray, the medical superintendent, for permission to publish this case.

COINS FROM A CARNIVAL.—Fifty bank clerks were occupied for 12 hours in counting the coins collected for the Birmingham hospitals by university students at the recent carnival.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE.

SECTION OF EPIDEMIOLOGY.

AT a meeting of this section held on Oct. 23rd, Prof. MAJOR GREENWOOD delivered his presidential address on the

General Register Office.

He ventured to assert that the publications of this curious department between 1850 and 1880 contained more valuable contributions to our knowledge of the theory and practice of vital and medical statistics than had been made by all other contemporary official and private investigators throughout the world. This office illustrated some of the fine virtues of bureaucracy, and also how extraordinarily advantageous jobbery might be, for its enormous success was due to two "jobs." Major Graham had been appointed Registrar-General by his brother, the Home Secretary, and William Farr had been appointed Compiler of Abstracts through the good word of the court physician, Sir James Clarke. Better appointments could not have been made, but both had been "jobs"—and good jobs too. William Farr had been born at Kenley, Shropshire, in 1807, the son of a farm labourer. His parents had entered the service of a retired cab proprietor of Bath, and William had been the old man's pet. His education had been desultory, and in consequence his only choice of a professional career had lain between that of an attorney and that of an apothecary. He had chosen the latter, and during his three years' apprenticeship to Dr. Webster of Shrewsbury he had laid the foundations of that curious unsystematic knowledge which had been a great deal more use to him than Westminster and Trinity would have been. When his benefactor had died and left him a legacy of £500, he had wandered about the continent—instead of acquiring some really impressive letters to add to his name. Not until four years later, when he was 25, had he taken any examination, and that the L.S.A., and a year later he had taken a wife and set up in practice in Grafton-street, Fitzroy-square. He must have had a hard time. He advertised lectures in his private house on "Hygeine" (sic), and two of them had been printed in THE LANCET of 1835–36. That journal also gave evidence (in the form of a letter to the Editor) that he had had at least one patient, and (in the form of a favourable notice of a medical almanac) that he had tried professional journalism. Probably Thomas Wakley had counted for a great deal in Farr's story; he might have introduced him to the notice of Dr. James Clarke, who had employed him to help statistically in the preparation of a book on consumption which had been published in 1835. Two years later Clarke had become physician to the Queen, and a very important person indeed, and it was probably he who had secured Farr's appointment in 1839 as compiler of abstracts in the new General Register Office, at an initial salary of £350 a year.

FARR AT THE REGISTER OFFICE.

Although there was no suggestion that Mr. Farr had any official importance, his hand could be seen from the first. The early reports of the Registrar-General were in the perfectly correct and restrained manner which we were accustomed to associate with blue books, but the fourth of them—the first signed by Major George Graham—contained a reference to the valuable assistance of Mr. Farr, couched in terms which had a temperature slightly above 4° C.—the temperature at which water attained its maximum density, and therefore the proper temperature of strictly official reports. Between the fourth and fifth annual reports some psychological revolution had been effected in the General Register Office. Thereafter, the official interests and literary style of the Registrar-General became very unlike those of most highly placed civil servants, and curiously similar to those of Mr. Farr. Possibly Graham had made an agreement with his subordinate that he should do what he thought proper, while Farr should write what he pleased. The letting loose in this way of an inquisitive, widely read enthusiast, with a flair for the meaning of statistical statements, was a splendid piece of luck. How he had organised our vital statistics and stirred the public conscience was well known, but perhaps his curious little hunts of statistical hares were less well known. A young medical statistician in want of a subject for research would find in the annual reports enough suggestions for a wilderness of theses.

FARR'S SUCCESSORS.

Farr's immediate successor, William Ogle, had had attainments which Farr might have envied. Farr had enjoyed the classics, but could never have fulfilled Macaulay's definition of a scholar: one who could read Plato with his feet on the mantelpiece. Ogle could have done that easily; he had been an exact scholar whose memory would be kept green by Aristotelians rather than by statisticians. Not that he had been an incompetent statistician—he had been the originator of standardised death-rates—but in his time the individuality and quaintness of the office's publications had evaporated. His successor, Tatham, a competent statistician with a wide knowledge of sanitary administration, had not recaptured the spirit of the old days, and a quarter of a century after Farr's death the reports of the General Register Office had completely reverted to the standard official literary style: informative, but certainly not lively. Then had come the epoch, now closing, when Dr. T. H. C. Stevenson had occupied Farr's chair, and the spirit of Farr had been recaptured. Dr. Stevenson's indictments of public health conditions had been more restrained in language but not less deadly in effect than those of Farr. He had hunted fewer hares, but the hares he had hunted had been captured. Like Farr, he had been interested in the people going up and down Camelot whose shadows appeared in the mirror of Shalott set up in the Strand. A reprint of his letters, with the slightest of rearrangements and a few connecting paragraphs, would be a model handbook of medical statistics.

The achievements of Farr and Stevenson had made the continuance of their particular kind of work difficult and perhaps impossible. It was now much more difficult to give an official vital statistician his head, in the way Graham had given Farr his head, because 80 years ago medical statistics had not been taken seriously. Now the news value, the tendencious interpretation, of medical and vital statistics could no longer be ignored. If a choice had to be made between insecure brilliance and safe dullness there could be no doubt in which direction official prudence must point. Nevertheless, Prof. Greenwood was not discouraged. We took a pride, he said, in our national institutions, and the General Register Office was one of our great institutions. Something of the personal human touch might be wanting, but the memory of that enthusiast from Shropshire, who had been so odd a civil servant and so English a genius, would continue to be honoured, and most of the things he had valued would continue to be valued.

BRITISH ORTHOPÆDIC ASSOCIATION.

THE annual general meeting of this association was held at Newcastle-on-Tyne on Oct. 30th and 31st. Mr. R. C. ELMSLIE presided. The first morning was devoted to discussion and papers, and in the afternoon cases were demonstrated at the Royal Victoria Infirmary.

Mr. H. C. EDWARDS (London) opened a discussion on

Injuries of Muscles and Tendons.

Muscle strains, he said, should be treated by early exercise to avoid adhesions and prevent wasting of the muscle as a whole. Massage was entirely useless. As a general rule ruptured muscles should be sutured in order to allow early exercise and movement. Late operation by fascial implantation where the retracted muscle belly had fully shortened was of no value. After referring to pathological rupture of the long head of the biceps in chronic arthritis of the shoulder, "drummer's rupture" of the extensor longus pollicis, and spontaneous rupture of this tendon following fractures of the lower end of the radius, Mr. Edwards went on to speak of other occupational muscle injuries, including rupture of the tendo Achillis in mountaineers, of the pectoralis major in boxers, of the external oblique in reapers, and the adductor longus in cavalrymen. Abdominal pain, tenderness, and rigidity in rupture of the rectus abdominis was to be distinguished from acute appendicitis. Avulsion of the extensor tendon of the finger (mallet finger) was, he said, best treated by operation. Open wounds of the flexor tendons gave very poor results. Immediate operation in the hospital casualty department was strongly deprecated, not only because the operation was too difficult for any but a very experienced operator, but because the risk of infection was much less after several days' interval. Bunnell's buried suture, and immediate active movements with *no immobilisation* were essential.

Mr. ROCYN JONES (London) said he had personally sustained a partial rupture of the calf muscles, and had found raising the heel of the shoe to be of no value. Local strapping was beneficial.

Mr. H. PLATT (Manchester) said that the only reliable sign of complete rupture of the tendo Achillis was an abnormal range of dorsiflexion at the ankle-joint. Operative treatment was then necessary. Mallet finger should be treated conservatively by fixation for six weeks. Although the terminal joint required hyperextension, both the other joints should be flexed.

Mr. W. TRETHOWAN (London) had observed the results of treatment by massage and exercises of a complete rupture of the tendo Achillis in a professional dancer who had refused operation. The tendon united with half an inch of lengthening, and although the patient did subsequently dance, she was now much less efficient, and had recently returned asking for operative treatment.

Mr. R. WATSON JONES (Liverpool) said that myositis ossificans at the elbow- and knee-joints was purely traumatic, and due to avulsion of a muscle insertion with periosteum. It was not an inevitable complication, and was curable by suturing the periosteum back to the bone. In cut finger tendons, the suture of the profundus tendon alone was advised. This tendon provided ample power, and if the sublimis tendon was completely cut away, adhesion formation was minimised.

The PRESIDENT (Mr. Elmslie) said that he had never seen a really satisfactory result when a flexor tendon of the finger has been cut below the distal palmar crease. Almost every speaker who had taken part in the discussion was in agreement, and had spoken in very strong terms of the danger of allowing casualty officers to suture cut tendons. The operation was never to be regarded as an emergency. Not only should several days elapse before it was undertaken, but the patient should be admitted to the wards, treated as a major case, and only operated upon by senior surgeons, preferably those accustomed to tendon surgery.

Various Conditions.

Dr. WHATELY DAVIDSON (Newcastle), speaking of *osteochondritis ischio-pubica*, said that it was a rare condition in which there was limping and pain suggestive of early tuberculosis of the hip with tenderness and swelling over the ischio-pubic ramus. Radiography showed a globular swollen appearance at the cartilaginous junction of the rami of the ischium and the pubis. The condition was thought to be traumatic in origin and analogous to osteochondritis of epiphyses. Symptoms subsided within a few months and the radiographic appearances became normal.

Mr. JOHN GILMOUR (Newcastle) had followed up a series of 37 cases of *tuberculosis of the hip*. Conservative treatment in an abduction frame secured recovery of a limited range of movement in a proportion of cases. A short fibrous ankylosis was a satisfactory end-result, but recurring flexion adduction deformity requiring repeated osteotomies was not infrequent. If the hip became unstable and dislocation or wandering acetabulum threatened, an extra-articular arthrodesis was advised.—Mr. NAUGHTON DUNN (Birmingham) said that multiple osteotomies could be avoided if the child whose hip disease had become quiescent was left without apparatus for six months until the maximum possible deformity had developed before the osteotomy was performed.—Mr. MCCRAE AITKEN (London) advocated non-weight-bearing unloaded movement after the disease was quiescent. This encouraged recalcification of the femoral head and acetabulum and prevented flattening of the bearing surfaces.—Mr. T. P. MURRAY (Liverpool) strongly recommended conservative treatment and said that the majority of adequately treated cases returned to work with a strong stable hip.

The PRESIDENT described seven cases of deposition of *amorphous calcium in the supraspinatus tendon* just above the great tuberosity. This was to be differentiated from fracture of the tuberosity, and from loose bodies in the joint. Very severe pain arose, and excision of the whole sac including the adjacent part of the tendon was advised. Symptoms were completely relieved and did not recur.—Mr. R. OLLERENSHAW (Manchester) reported two similar cases, and Mr. WATSON JONES said that the condition was exactly analogous to calcification of the semilunar cartilages, intervertebral discs, fibrosed lymph glands, and organising blood clot and was due to fibrosis. It occurred in other tendons, notably the tendo Achillis after tenotomy. Occasionally the deposit could be aspirated subcutaneously with complete relief of symptoms.

Mr. WATSON JONES demonstrated a simple portable apparatus by which anatomical reduction of *over-*

riding fractures of the shafts of the tibia and fibula could be secured, which allowed immediate fixation in plaster. Reduction was just as perfect as when an open operation was performed, and all the disadvantages of extension methods were avoided. The complete treatment of a case was illustrated by means of a cinematograph film.

Mr. S. A. S. MALKIN (Nottingham) speaking on *bone grafts and fusion operations for the spine* compared the relative merits of Albee's, Hey Groves's, Gibson's, and Hibb's operations for fusing the spinous processes and laminæ in tuberculosis of the spine. He was in favour of laying a double tibial graft on the laminæ, one on either side of the bases of the spinous processes. Solid bony fusion could be demonstrated radiologically.

LIVERPOOL MEDICAL INSTITUTION.

AT a meeting of the institution on Oct. 22nd, with Mr. FRANK JEANS, Vice-president, in the chair, a paper on

Carcinoma of the Breast

was read by Mr. PHILIP HAWE. It was based, he said, on a series of cases treated at the David Lewis Northern Hospital, Liverpool. The results were divided into two groups. Of 38 *early* cases, including nine cases not traced, 29 were alive five to ten years after operation, and of 74 *late* cases, including ten cases not traced, 24 were alive five to ten years after operation. Carcinoma in the remaining breast was found in 10 per cent. of the cases surviving operation. One case was quoted in which the patient survived a subsequent pregnancy. Mr. Hawe emphasised the difficulty of distinguishing the so-called fibro-adenoma of chronic mastitis from early carcinoma, and illustrated the same difficulty in connexion with chronic cystic mastitis by describing six cases of malignancy in association with cysts of the breast.

In the discussion which followed, Prof. R. E. KELLY said that all tumours of the breast must be examined microscopically. He did not agree that the breast should be removed entirely in all cystic cases. The operation was not complete enough if cancer was found, and unnecessary should there be no signs of cancer. Mr. J. T. MORRISON took exception to the use of the term fibro-adenoma as indicating a condition likely to be associated with carcinoma. He limited its application to encapsuled simple neoplasms, rarely if ever becoming carcinomatous. Treatment by radium, he said, was still experimental, and its insertion was to be regarded as a major operation. Its value, of course, was great, since even in advanced cases it could be relied upon to produce wonderful local improvement, with corresponding relief of the patient's most distressing symptoms.

Failed Forceps.

Mrs. M. A. DOBBIN CRAWFORD said that the obstetric forceps, used when the signs were favourable, was an instrument of mercy; used in unsuitable cases or at an improper time it was a lethal weapon wherewith thousands of living fœtuses had been killed. To illustrate the frequency of its abuse she had investigated the last 100 cases admitted to the Liverpool Maternity Hospital after attempts to deliver by forceps had failed. The reasons for application were: in 20 cases none discoverable—probably a desire to save time or to save pain; in 64 cases disproportion, the main factors being post-maturity, occipito-posterior position of the vertex, and contracted pelvis. The four rules for the application of forceps had been obeyed in only four of the 100 cases. In 52 cases forceps were contra-indicated, in 44 they had been applied too soon. In 59 cases the patient was in the first stage of labour, the smallest degree of dilatation being a two-finger os. Severe maternal lacerations were present in 40 of these, the uterus having been ruptured in three. In 36 cases the head was free above the brim, in another 34 the head was entering, the largest diameter being still above the brim. The immediate results were that 12 mothers died, the morbidity was 31 per cent., and 62 infants died or were stillborn, while nine of the surviving infants suffered birth injuries. No less than 20 of the mothers were delivered spontaneously after treatment by sedatives and rest.

There were several anomalies in the use of forceps: (1) It is the most common operation in general practice, and the one common operation which many students never see; (2) the excessive force so often applied during the operation is a perfect example of the proverb "out of sight, out of mind"; (3) the appearance of the scalp during pains does not necessarily indicate that the head is on the perineum, or forceps permissible. Having done the midwifery of a general practice for seven years, the speaker was not ignorant of the difficulties of this most exacting and worst-paid branch of medicine. She foresaw little prospect of a decrease in the figures of fœtal and maternal mortality until public opinion comes to recognise the importance of obstetrics, the unreasonableness of expecting one brain and one pair of hands to do the work of two, and the absurdity of expecting every newly qualified doctor to be an expert obstetric surgeon. The time allowed for practical midwifery in the medical curriculum was far too short, being adequate only for the student who is determined to undertake no obstetrical work after he is qualified.

Dr. GLYNN WHITTLE, in the subsequent discussion, agreed that teaching authorities should require improved and extended clinical instruction in midwifery. It would doubtless be advantageous to expectant mothers if all doctors on commencing practice either devoted themselves seriously to obstetric work, or declined midwifery altogether.

Mr. PERCY MALPAS thought Mrs. Crawford's paper very significant, especially as regards the need for reconsideration of the diagnosis whenever forceps have failed once. The major difficulty in the treatment in hospital later of these cases was that the forceps had been repeatedly applied, so that apart from trauma and infection, the whole mechanism of the labour was disturbed, and any subsequent treatment, either active or passive, was often doomed to failure. The facts of the whole paper could not be too widely appreciated.

Dr. S. B. HERD spoke of the frequency with which instrumental delivery fails although a patient has had all her previous children born without help. That type of case usually resulted from a condition of either post-maturity or weakness of the uterine muscle—or both together. Contracted outlet of the pelvis (funnel-shaped pelvis) might result in failure to deliver with forceps even when the head had reached the perineum.

BLOOD TRANSFUSION IN HÆMOPHILIA.—In a discussion at the Medical Society of London reported last week (p. 964), Dr. H. Letheby Tidy is made to say "there was no need to perform blood grouping in hæmophilia." What he actually said was that "citrated plasma is effective in hæmophilia, and for this there is no need to perform blood grouping." If whole blood or citrated blood is used, he adds, blood grouping has to be performed with the usual care.

REVIEWS AND NOTICES OF BOOKS

A Manual of Embryology.

By J. ERNEST FRAZER, F.R.C.S. Eng., Professor of Anatomy in the University of London (St. Mary's Hospital Medical School). London: Baillière, Tindall and Cox. 1931. Pp. 486. 30*s*.

BRITISH anatomists in particular will welcome Prof. Frazer's account of the development of the human body, the outcome of 25 years of devoted work in this field. The account is written from a frankly personal and human (as opposed to comparative) standpoint, and we would not have it otherwise. The author in his preface takes full responsibility for descriptions in the text which diverge from conventional lines; since such divergence is not always signposted, its recognition presupposes some knowledge of the subject on the part of the reader. But the latter is unlikely to be led far astray. The work is impressive in the careful accuracy of statement which, departing from facile convention, seeks to present the thing as it is, rather than as it is traditionally accepted. Only occasionally may the lack of reference to the work of others be felt to be a real omission—e.g., in connexion with the development of the meninges.

The general arrangement of the book is on novel lines. As far as possible a regional presentation has been adopted "to give the student some sort of connected mental picture of the developing embryo, rather than a patchy series of discrete descriptions of the formation of organs." Prof. Frazer deserves congratulation on his remarkably successful pursuit of this ideal. To read his account is to obtain a picture of the growth of the body in the correlated development of its component parts. A student looking for easily acquired potted information, wherewith to respond to developmental "tags" at the end of examination questions, is likely to be disappointed with this book; but that is the fault of unsatisfactory methods of teaching and examining which, it may be hoped, this book will help to make obsolete. Prof. Frazer regrets the necessity for drastic pruning of detail. The pruning indeed is in some places excessive. Certain matters of detail are left out altogether—e.g., the conducting system of the heart. In the account of the development of the heart, the sinus venosus is merely named; the reader is left in ignorance of its formation and tributaries unless he happens to remember the legend to a figure (Fig. 35) appearing much earlier in the book. The omission of reference to developmental abnormalities will disappoint medical readers, unless the absence of this section leads them to hope for a companion volume on Developmental Pathology. There are remarkably few misprints. On p. 8 the formula $\frac{x}{2} + 1$ should be $\frac{x}{2}$, and $\frac{x+1}{2}$ should read $\frac{x}{2} + 1$; on p. 19 the label UC is used for two different things in the two parts of Fig. 7, while only one meaning is given in the legend; "hind-brain" in line 12 on p. 161 should surely be "*mid-brain*."

The senior student and the teacher will find in this book enjoyment, information, and inspiration. Above all it will be useful to the serious student of embryology as a guide to the direct study of human embryos. Few anatomists in this country have the thorough personal knowledge of human development required for the writing of such a book. One of them has produced a work which will worthily uphold the prestige of British embryology.

Human Heredity.

By ERWIN BAUR, EUGEN FISCHER, and FRITZ LENZ. Translated from the German by EDEN and CEDAR PAUL. London: George Allen and Unwin, Ltd. 1931. Pp. 734. 30*s*.

UNTIL the appearance in 1929 of Prof. R. Gates's book "Heredity in Man," there was no epitome available in English of the many researches into human genetics which, since the war, have been vigorously prosecuted on the continent of Europe and in America. Now we have also the translation of a standard work in German on human heredity which, while not claiming to be exhaustive, contains references to most of the important papers which have appeared up to the year 1927. The volume consists of five sections. The first, by Dr. Erwin Baur, outlines the general theory of variation and inheritance, expounding in the process the chromosome theory at somewhat greater length than is necessary for the understanding of the known facts of human heredity. The section by Dr. Fischer, dealing with the racial differences in mankind, will be of greater interest to the anthropologist than to the medical man. The last three sections, concerned with Morbific Hereditary Factors, Methodology, and the Inheritance of Intellectual Gifts, are all written by Dr. Fritz Lenz, and occupy about two-thirds of the book. Of these last three sections, the first mentioned has the greatest medical interest. Here are set forth, in over 200 pages and under 11 headings, a number of valuable pedigrees in which is epitomised most of what is known of the inheritance of the various human defects, diseases, and diatheses. This section will doubtless prove useful to students of pathological heredity, both for its direct information and for its numerous references to the more detailed literature.

Despite the care with which it has been compiled and the vast amount of information it contains, the book has several disadvantages for any reader who, in a given case, wishes to form an opinion on the advisability of parenthood. Dr. Lenz is professor of Racial Hygiene at the University of Munich. His descriptions of diseases, which fill a considerable bulk of the third section, are obviously not those of a man who has himself observed their characteristics and courses and they will enlighten neither the medical nor the lay reader. In the section on methodology the word "carrier" is indiscriminately used to denote both the person who, while not manifesting it himself, carries a disease in genetically latent form, and the person who exhibits a disease. As a result much of this section is unintelligible, and the reader is oppressed by the suspicion that the translators may not have grasped the true meaning of their original text. Lastly, the index of the book is so planned that names of the specific diseases, instead of appearing in their expected alphabetical places, are included under vague, comprehensive titles in such a way that their discovery is not easy. Thus "brachydactily" is not found in its expected place; it is found under the general heading of "malformations," together with such diverse entities as "teeth, tower skull, and twins," which by no means obviously exhibit the common characteristics of being malformations. In his approach to racial psychology, Prof. Lenz leaves the solid earth of observed fact, his treatment of the subject almost suggesting that his chief aim is to justify the proposition that "in respect of mental gifts the Nordic race marches in the van of mankind."

The material of this book is simultaneously expounded by the scrupulously inductive method of the geneticist and by the statistical method of the mathematician; it is also surveyed from the synoptic if misty standpoint of an exponent of racial hygiene who thinks that one particular race is superior to all others. In these various approaches, the predicament of the medical man, confronted with the practical question of how to advise his patients about parenthood, is somewhat lost sight of. The reader genuinely interested in human genetics will, however, discover in it much valuable information.

Recent Advances in Allergy.

By G. W. Bray, M.B., Ch.M. London: J. and A. Churchill. 1931. Pp. 432. 12*s.* 6*d.*

This volume is an admirable addition to the "recent advances" series. Dr. Bray has had very valuable opportunities for the study of allergy, and of asthma in particular, as research scholar at the Hospital for Sick Children, Great Ormond-street. In this book he has presented a full summary of all the recent important work on this growing subject, as well as some of his own work on several aspects of it. Our knowledge of allergy has increased rapidly in recent years.

In this book the first 156 pages are occupied with a general discussion of the problems concerned in allergy such as heredity, climate, and the influence of psychic, endocrine, and toxic factors. Some 40 pages are devoted to asthma, including its causation, pathology, and treatment, and about half this number to hay-fever. Other conditions which are discussed include urticaria, eczema, migraine, epilepsy, serum sickness, and muco-membranous colic. Food allergy is a problem which must interest every practising physician. The most varied symptoms are thought to be due to the ingestion of common articles of diet such as egg, milk, wheat, and the like; the failure of skin reactions affords no proof that food sensitisation is not the cause of symptoms.

This book offers a full review of the literature with many references and will provide a new field of interest to many.

Robert and Clive.

"*The Story of a Surgeon.*" By Clair Cope. London: John Bale, Sons and Danielsson. 1931. Pp. 168. 6*s.*

A pseudonymous medical man has put together here in simple and well-chosen language a group of stories which are well worth reading. Each has as its motif some puzzling situation in which the doctor, belonging to this or that category of the profession, may find himself, and for the most part, the happenings are not far-fetched. One story contrasts the effects of resistance and "flop" in the face of a great grief; two other stories set out the medical situations which have to be met by the doctor in the cases of the patient who is not really ill and the patient who is much worse than is apparent. A well-written illustration of the folly of being wise shows the miserable apprehensions of a surgeon who, having wounded himself in the course of operating on a highly septic subject, interprets certain symptoms due to a transient catarrh as the commencement of fatal septicæmia. Sometimes in the desire to round off a story the probability is strained, but Clair Cope is either a sufficiently practised writer or a sufficiently observant reader to see that many a story gains its force by withholding the actual issue of events, leaving the reader to terminate them as he wills. The episode of a doctor who has to perform an emergency operation on his own child, and that of the anæsthetist who manages to prevent the undue prolongation of operative procedures, both show a close appreciation of the interplay of sentiment and duty upon action The penultimate love-story is delicate, and the final criticisms of hospital administration will appeal to all reformers.

The stories contain much sound wisdom, and if many of them are thoroughly sentimental, none is mawkish. For the most part they depict the virtues of various practitioners, which are self-rewarded; the existence of black sheep is noted but their punishment is not.

Your Servant the Doctor.

By G.P. (W. B. Cosens). London: John Bale, Sons and Danielsson, Ltd. 1931. Pp. 192. 7*s.* 6*d.*

This is a book to read in rather than to read through. It should stand in the little shelf where doctors, like other professional people, keep books they want to lay hands on from time to time; and even if after a month or two it gets replaced by a newcomer, it is likely to have a second promotion. "G.P." has much to say: what we think of it depends upon our individual mental make-up. Some of his reflections are of course the outcome of his own personality and experience and these, though interesting, are of minor importance, but here and there he goes deeper and touches rock bottom, probing the universal mind. These deeper probings may be less acceptable than the more superficial anecdotes, pleadings, and judgments of which the book is full; but we are glad that it is on an early page that he really speaks truth to those who are prepared to listen. He unmasks the jealousy that pervades some sections of the profession, after commenting upon the calls that doctors' wives feel impelled to make upon prospective patients. This passage of his book will arouse the indignant denial the author anticipates, or a pained acquiescence, according to the psychology of the reader. Chapters are included on the night-bell, on medical education, on specialists, fees, and panel practice. The general practitioner is held to be interested, and certainly becomes interested, in subjects as widely separate as heredity, domestic troubles, religion and politics, dress, sex-equality, and village tittle-tattle. All doctors will find something to appeal to them in this charming collection of medical experiences.

Thou Shalt Not Kill.

By G. Clement, M.D., Chief Surgeon at the Cantonal Hospital, Fribourg. Edinburgh: E. and S. Livingstone. 1931. Pp. 152. 6*s.*

This pamphlet, an authorised translation from the fourth French edition, is a vehement statement against abortion. The author does not attempt to be impartial, but is wholeheartedly against abortion in any circumstances, and has brought a high degree of experience, knowledge, and skill in pleading to the construction of a formidable case. He examines all the recognised therapeutic indications and dismisses each one in turn; he invokes religious, moral, and ethical sanctions, some of doubtful validity and some bordering on the crudely sentimental, to reinforce the emotional side of his appeal. Readers in search of a frankly ex-parte statement will find this side of the case argued with great force and completeness, and very well documented; but it is doubtful whether the practitioner who is really seeking a solution of this most difficult problem will find the work of any assistance to him.

Reminders and Suggestions

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HEREDITARY OPTIC ATROPHY.

a volume[1] recently issued from the Eugenics
oratory Dr. JULIA BELL gives 240 pedigrees
Leber's disease covering 1182 affected indivi-
als, and from these data draws certain con-
usions. The pedigrees show that, though the male sex-incidence of the disease is predominant it is not absolute, as is thought to be the case with hæmophilia. Among Europeans affected the relative proportion of the two sexes was 863 males to 155 females, but among the Japanese there was a far greater approach to equality, 97 males to 67 females. No explanation of this contrast between Europe and Japan is forthcoming. As to the age of onset, the usual age is between 20 and 25, but the mean was slightly higher for Europeans than for Japanese in the case of both males and females. As to the clinical signs of the disease, the presence or absence of a central scotoma and of peripheral contraction of the fields is given in percentages. Other figures concern the course and prognosis of the disease, the proportion of cases showing no improvement over a period of years, and the smaller proportion showing improvement, including 12 cases of complete recovery of vision. In his Bowman lecture of 1909 NETTLESHIP[2] expressed his opinion that the chance of recovery is often put too low; we may speak hopefully, he says, of any case seen within a couple of years of onset, and he gives records of 25 good recoveries. The most important part of Dr. BELL's summary deals with the hereditary character of the disease and

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[1] Hereditary Optic Atrophy (Leber's Disease). By Julia Bell, M.A., M.R.C.P. Part IV. of the Nettleship Memorial Volume on Anomalies and Diseases of the Eye. Eugenics Laboratory Memoirs XXVI. London: Cambridge University Press. 1931. Pp. 90 and 16 plates. 36s.

[2] Trans. Ophth. Soc., 1909, xxix., 110.

its mode of transmission. The belief that though males are predominantly affected they never transmit the disease directly has been doubted, but is supported by the evidence here collected, not as an unvarying fact, but as one very nearly always holding good. Exceptionally, however, it is proved that the father is able to transmit the disease either directly, or indirectly through his daughters to his grandchildren. What the conditions are which render this possible is obscure, but it is suggested that it depends on some linked factor inherited with the disease. It is so exceptional that Dr. **Bell** hazards the opinion that if the sisters of affected males refrained from parentage the disease would be almost exterminated. In support of this she states that of 573 affected males no fewer than 95 per cent. owed their affection to the mother, and of 88 affected females, 84 per cent. owed their affection similarly to the mother. A similar proportion was found in the Japanese cases in spite of the difference before mentioned in the sex-incidence.

There are other diseases which are inherited more commonly through the mother than the father—retinitis pigmentosa is one—but in no other case is the predominance of inheritance through an unaffected mother so much the rule as in Leber's disease. Consanguinity of the parents in Leber's disease is seldom found. **Nettleship** stated in the lecture quoted that the only case in which a cousin marriage increases the risk is where the man is affected with the disease and his cousin wife carries it latent. Dr. **Bell** pays a tribute to **Nettleship**'s work, but truly says that the available material has so markedly increased since he wrote that she deemed it best to make an entirely independent analysis. Indeed, the available material for testing the applicability of **Mendel**'s theories to this disease continues to increase, but the problem does not admit of a simple solution. At the spring meeting of the Ophthalmological Society Dr. W. **Ritchie Russell** produced a pedigree of Leber's disease (reproduced on p. 1018 of our present issue), in which three brothers and their second cousin (male) were all affected, but no instance of the disease was known to have occurred in the three previous generations. The parents of the three brothers were second cousins. The fact of the appearance of the disease in another member of the same stock made it probable that it was inherited from a common ancestor. According to the theory of sex-linked inheritance, the factor causing Leber's disease is a recessive character becoming manifest only in males, whereas the power of transmitting the disease may reside in females not themselves affected. If this theory were strictly applicable one would expect that there would have been instances of the disease among the men of the previous generations of the affected families, and that more than two of the women in the affected stock would have transmitted it to their sons. Such, however, was not the case. Dr. **Russell**'s suggested explanation is that Leber's disease depends on an inherited tissue vulnerability, that the tendency may be counteracted in an exceptionally healthy stock, and that in the instance he quotes the consanguinity of the parents acted as an unfavourable influence which allowed the tendency to disease to become manifest.

Apparently still more disconcerting to the accepted theory of Leber's disease is a pedigree published[3] last year by Dr. A. A. **Mussen**, medical officer to the Liverpool education committee. This pedigree shows no less than 33 descendants of one man affected with the disease. It was by no means confined to the males, but appeared in equal proportions in the two sexes (17 males and 16 females). Moreover, whereas by the accepted theory an affected father is incapable of transmitting the disease unless the mother also is a carrier, in this pedigree out of 19 children of affected males no less than 14 were affected. The facts of this pedigree are in direct conflict with the theory that Leber's disease depends always on a sex-linked transmission in which the factor causing it is recessive. In this instance it was obviously dominant—i.e., the single sex-chromosome of the father, bearing the Leber's factor, on meeting the two sex chromosomes of the mother—free from Leber—instead of retiring and becoming extinct as it would do if the Leber factor were recessive, became dominant. Such is obviously the explanation of this apparently anomalous pedigree. It has been recognised by previous writers that the tendency of the Leber factor to become dominant, though not common may exist, and it has been said that this tendency varies in different races. The Liverpool pedigree therefore is not typical of the common form of Leber's disease. It differs from it not only in the mode of hereditary transmission but also in the fact that the affected individuals were all children of school age, whereas in the great majority of pedigrees that have been collected the affected individuals have had normal eyesight until early adult life. Cases are not unknown of congenital optic atrophy occurring in families, and in the opinion of **Nettleship** these cases are true Leber's disease, setting in very early in life, or perhaps sometimes before birth. It would be of interest to determine whether in these families the factor carrying blindness is transmitted in the dominant or the recessive way. Meantime we may have to suspend judgment as to the prognosis with regard to heredity in individual cases.

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A SEX-LIMITED SPECIALTY.

In his Bradshaw lecture delivered on Tuesday before the Royal College of Physicians of London, which is printed at the front of our present issue, Dr. **Fairbairn** deals with fundamental problems as old as the art of medicine and yet strangely far from solution. What is the causation of the mass of ailments presented to the gynæcologist? Are they the result of physical deviations from the normal, in respect of structure or metabolism?

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[3] Report of the School Medical Service for the year 1929. Published for the Education Authority, 14, Sir Thomas-street, Liverpool, 1930, p. 12.

Are they due to mental causes and should they be interpreted as expressions of psychic conflict, or revolt against the primal lot of woman? How far will preventive medicine in its attempt to mitigate the natural pains of labour actually increase our problems? Following in the line of thought suggested by CLIFFORD ALLBUTT, MATTHEWS DUNCAN, and, later, Dr. ROBERT HUTCHISON, the Bradshaw lecturer had no difficulty in showing how progress is hindered by too exclusive an adherence to a mechanical explanation of symptoms, and too narrow a view of the gynæcological field. Advances in surgery and pathology have done less than might have been hoped to relieve the situation, for pessaries have been replaced by 'pexies, and the operations to which the patient is subjected have become more varied and numerous. Although this phase also is passing, Dr. FAIRBAIRN thinks that too much weight is still attached to minor defects of the pelvic organs, and the unnecessary operation, with its necessary sequel of the uncured patient, is not yet a thing of the past. Real progress lies in pressing on the movement already well begun for linking up gynæcology with her "ancient mother" obstetrics and with her sister specialties of general medicine and surgery. Much of the gynæcologists' difficulty he recognises as due to the fact that by the nature of his calling he rarely sees the sexually normal woman, and has little chance of establishing by scientific observation what deviations from normal structure are consistent with good general health and easy performance of sex functions. A gleam of hope comes from the field of preventive medicine. Intelligent use of antenatal and postnatal clinics as a field for research should provide opportunity for obtaining this information. The experience of these clinics may incidentally throw light on the rôle played by chronic uterine sepsis in producing invalidism in women.

Of equal or greater importance for the future is the recognition of the part played by mental processes in producing or augmenting symptoms referred to the reproductive system. This is a truth which needs restating with every advance in scientific knowledge; for the balance between the parts played by the mind and body in disease is always a delicate one, difficult to determine and easily obscured by enthusiasm for any new form of treatment. Dr. FAIRBAIRN frankly admits that in three widely differing fields—dysmenorrhœa, dyspareunia and vaginismus, and the vomiting of pregnancy—modern therapeutics owes more to intelligent application of psychotherapy than to pure gynæcology or obstetrics. Similar help, he suggests, might be gained from psychology in the treatment of that baffling group of ill-defined ailments now referred to the uterine displacements and enteroptoses. He points to the static condition of the maternal mortality-rate, and more especially to its strange tendency to remain higher in the richer than in the poorer districts of great towns, and asks whether the true explanation does not lie in the mentality of the women themselves. The modern woman's reluctance to have children and her demand, if she does, to have the pains of labour shortened by forceps or full anæsthesia, in the *long run adds to* the very risks she is trying to avoid. There is no need to look for any sex-*linked distinction* in the constitutions of men and women to *account for these* well-known facts. Granted that the influence of mind, conscious and unconscious, over the body is a universal human phenomenon, and that the sensitiveness of their interaction tends to increase with the development of mental powers, it is surely *inevitable that* civilised women should tend to exhibit *many and* diverse unconscious defence mechanisms against reproduction. For the woman sex means risk, pain, and, sadly often, death, even as war does for the male. The history of war neuroses, miscalled shell shock, shows that the male constitution has little to learn from the female in the way of evading *unpleasant* hazards.

The reason why psychology, or psychotherapy as it is more properly called, has failed so frequently in the past to give the help expected of it must be faced if Dr. FAIRBAIRN's reasonable expectations are to be fulfilled. Too often the neurotic woman has been confronted with a mere assurance that there is nothing the matter with her—which is not true; or an exhortation to get well by her own efforts—which is impossible. Psychotherapy should mean constructive treatment based on a skilled and patient investigation of the woman's mental condition, or it is likely to be as useless as the pessaries and 'pexies of the past. It should further be conducted in close association with the gynæcologist and general physician and surgeon; for there is often some physical basis for the neurosis, from which the patient is entitled to obtain relief. Indeed, a genuine effort to relieve all unnecessary pain, fatigue, and suffering should form a large part of the therapeutic picture. Not least of the factors which have contributed to the present unsatisfactory situation is the attitude of many practitioners that the relief of the pain and discomforts of childbearing is outside their sphere. There is surely much that may yet legitimately be done to mitigate the lot of the poor mother. The test of so-called humanitarian interference with labour should be whether it hinders the work of nature or helps. *There is much* evidence that skilled use of analgesics and light anæsthesia actually promotes normal labour, and leaves the woman *better able to perform her task* of child-rearing and to confront the prospect of *another* labour courageously. The humanitarian use of forceps is another story. Finally, it should be clear that the woman neurotic patient needs clear guidance and moral support if she is to be successfully helped in confronting the realities of life. Unless the psychotherapist has a clear conception of the goal to which he is leading his patient, psychological treatment becomes mere prattling, and the woman retreats more securely behind her defences, and will remain a gynæcological or obstetrical problem. Nor is she likely to surrender to an acceptance of normal obligations, sexual or merely domestic, if her husband and public opinion support her evasions.

ANNOTATIONS

AN EXPERIMENT IN PUBLIC HEALTH ORGANISATION.

IN 1922 the Milbank Memorial Fund selected Cattaraugus county in New York State as a representative rural area to take part in a demonstration of the effect of concerted measures for the improvement of the public health. Accordingly they supplemented with a liberal hand the funds provided by the State and county administrations, and the new programme was launched in 1923. Since then a comprehensive public health organisation has been developed in the county, and it has been thought desirable to make an attempt to ascertain whether it has justified itself. To this end the technical board of the Fund asked Prof. Winslow to undertake a survey of the scheme and to comment on its results. He has now published his report,[1] in the preparation of which he has had the help of a band of collaborators. Cattaraugus county has an area of approximately 860,000 acres (about the size of Wiltshire), and a population of 72,649 persons (roughly the population of Westmorland). The scheme elaborated by the joint efforts of the Fund, the State and the county comprises those provisions which are regarded on both sides of the Atlantic as essential to a complete public health service—viz., sanitary supervision and surveillance of food traders, control of acute communicable disease, care of mothers and children, inspection and treatment of school-children, domiciliary and institutional care of the tuberculous, prevention and treatment of venereal diseases, laboratory service, clinics for mental disease and defect, clinics and beds for cripples, nursing in the home, and public education in matters pertaining to health. For these purposes, staff and premises had to be obtained, voluntary bodies had to be utilised and couraged to extend their activities and the coöpera- n of the private practitioner had to be sought. ne idea of the scope of the activities of the scheme ay be gathered from the financial outlay, which reached in 1929 $160,000, equivalent to $2.20 per head of the population, or roughly (with sterling at par) 8*s.* 6*d.*, which is rather more than many large progressive towns in this country expend on the esponding services.

brotrying to estimate the gain to the community affec intensive public health effort, Prof. Winslow to haat the outset that the period of the experi- The too short to provide a high standard of cous y, and that the difficulty is intensified by in sence of accurate controls for the comparison prol al trends. The statistical department of the k Fund, however, have made a careful study anc ath-rates in the county before and since the inh ion of the scheme, more especially from diph- a re tuberculosis, and those causes in infancy males, e not congenital, and have arrived at the disease that there has been a significant decline, affected. d. with the rates in reasonably similar one woul estimate that during the period of the instances there has been a yearly saving of previous ge iberculosis, 20 from diseases of infancy, that more tl liphtheria, a total of 38. Taking the stock would ng adult life as $12,000 and of an Such, howevei , Prof. Winslow computes the finan- saving of life alone, apart from the es many other advantages in the way of improved health in the community, at $300,000 per annum, or nearly twice the cost of the programme. In view of the problem of unemployment, in America as in this country, the validity of this monetary way of measuring a life's worth is open to question; the benefit to the community of saving lives and avoiding disease can hardly be calculated mathematically.

In this country there has been much greater uniformity of public health progress than over the water, and it is correspondingly more difficult to decide how much of our improvement in health is due to ad hoc administrative effort. The carefully studied experiences of Cattaraugus county are therefore of great interest, and Prof. Winslow's conclusions ought to hearten our sanitary authorities and their officers. It will possibly comfort the older school of British sanitarians to read in an American publication that "experience in Cattaraugus county has shown that sanitation cannot wisely be minimised in a county health programme." It is disappointing to learn that those responsible for administering the new services were not entirely successful in gaining the confidence and coöperation of the organised medical profession in the county.

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m and in the Village. By C. E. A. ssor of Public Health, Yale School of aillan and Co. Ltd. 1931. Pp. 281. 5*s*.

MENTAL TESTS: THEIR USE AND ABUSE.

IN a short article in *Mental Welfare*, the quarterly organ of the Central Association for Mental Welfare, Dr. A. Carleton Williams, one of the divisional medical officers of London County Council, makes a useful contribution to the literature of mental tests. Defending their use against the criticisms of some authorities, he claims for such tests in the diagnosis of mental defect a value analogous to that of the stethoscope in chest diseases. It is true of course that social inefficiency is the ultimate criterion of mental defect, and that it is best evidenced in what is called behaviour or conduct; but the examiner only too often has to rely on others for his knowledge of that behaviour, he can make no first-hand observations of it. Moreover, in certifying he has to record facts "observed by himself," and it is here that a comprehensive scale of tests gives the examiner ample material to judge the examinee's powers of perception, memory, and reasoning, not merely by actual results but by the quality and manner of response. Even the much despised mental ratio has its value, as it gives a certain exactness to the diagnosis which the mere words "imbecile" or "feeble-minded" fail to convey. To diagnose mental or even moral defect on the mere occurrence of immoral behaviour is, as Dr. Williams suggests, to run the risk of gross-error. He discusses certain observed differences, qualitative rather than quantitative, in the types of response of defectives as compared with normals. Those that he quotes illustrate chiefly the purely mechanical or rote-like mentality of the defective, and his relative incapacity to rearrange or apply or reason about such parrot knowledge as he acquires. Dr. Williams stresses the special value of tests involving reasoning and those of a non-verbal character, and very properly insists on the special care necessary in cases where tests reveal a relatively good general intelligence but conduct is unbalanced and uncontrolled. Such cases are the bugbear of even the experienced examiner, but even here, carefully selected tests may prove ing. In conclusion, Dr. Williams emphae necessity for careful judgment in the use tests, and careful interpretation of the responses based upon medical and psychological knowledge. The article is full of points of interest to all mental esters but it might with advantage have been mplified by the inclusion of more concrete detail.

PROPHYLACTIC PLASMOQUINE ON A TEA ESTATE.

Lt.-Col. W. W. Clemesha and Dr. J. H. Moore, after collaborating for six years in anti-malaria measures on the Travancore Tea Companies' estates, have reported[1] what they believe to be the first attempt to use plasmoquine for the eradication of malaria *from* a community. Travancore is a prosperous Native state on the Malabar shore of India between the latitudes 7°–9° N. and includes a range of hills known as the Western Ghauts rising to a height of 6000 ft. or so, on the slopes of which tea is grown between the 2400–4000 ft. contours. Between are ravines and mountain valleys which are realised to be malarious. The period of maximum anopheline activity and of malarial infectivity begins about the middle of March and lasts until June when the rains break. Measures were concentrated on the extremely unhealthy Periyar Valley, 2500 ft. above sea-level, where the writers were fortunate enough to have as control two native estates on which no antilarval measures had ever been carried out. The investigation began in May, 1925, when the output of work was frequently as low as 25 per cent. for weeks together, and the cases were all of malignant tertian. Arrangements were made for a vigorous campaign in the malaria season of 1926. These measures were on the following lines. If it were possible to cure all gametocyte carriers in any community malaria would disappear, it being immaterial how many anophelines there were. Manifestly the only correct method of stopping reinfections is to procure the maximum reduction in the number of anophelines and the maximum reduction in the number of gametocyte carriers. If conditions are favourable for an 80–90 per cent. reduction in the number of gametocyte carriers and a 66–75 per cent. reduction in the number of dangerous anophelines, there should be few reinfections of malaria. In pre-plasmoquine days the reduction in the number of gametocyte carriers was very difficult; now it is comparatively easy. The Oriental, particularly the Tamil cooly, is much more susceptible to drugs than is the European, but plasmoquine compound is harmless compared with pure plasmoquine. In every patient who sickened with malaria the following procedure was adopted :—

Stage 1.—Whilst the patient is febrile, either cinchona febrifuge tablets or Major Sinton's alkaline quinine treatment was given, in addition to one tablet of plasmoquine, a total for the week of grs. 105 of cinchona febrifuge plus 0·07 g. plasmoquine.

Stage 2.—Two tonic pills a day for one week.

Stage 3.—The first week's treatment is repeated making a total amount of grs. 210 of febrifuge and 0·14 g. plasmoquine.

This constitutes a three weeks' anti-gametocyte treatment, which not only achieves its main object, but also prevents relapses. For children who are quartan gametocyte carriers small doses of pure plasmoquine are added to the euquinine and milk treatment on two days a week.

Col. Clemesha and Dr. Moore consider that with these two weapons—namely, the anti-gametocyte after-treatment for adults, and the euquinine and milk treatment for children—it has become possible to make an onslaught on gametocyte carriers up to 95 per cent. of success. This they have proved by taking blood slides at various periods, a malarial register being kept on the estate with a record of thick films stained by Giemsa. On examination of 95 coolies known to have suffered from malarial relapses, 45 per cent. had no parasites in their blood, in 20 per cent. the blood corpuscles showed signs of basophilic stippling, and in 35 per cent. parasites were found, benign tertian predominating. The results of the pre-plasmoquine period have been compared with the plasmoquine period. In the autumn of 1928, 73 per cent. of slides were positive and 51 of these contained gametocytes. In the period November, 1929, to June, 1930, of the 120 slides examined in the non-malarial season, 7 per cent. only were positive and there were no gametocytes; whilst in the malaria season during the same period out of 116 slides 56 per cent. were positive and 3 per cent. contained gametocytes. The writers consider that these figures go to show: (1) the efficacy of plasmoquine compound in removing gametocytes from the blood and in preventing relapses, and (2) the influence of this gametocyte removal upon the incidence of disease. For during the malaria season of 1930, malaria practically ceased to exist and regular prophylactic dosing of children was discontinued.

SPASM OF THE GASTRO-INTESTINAL TRACT

Dr. A. J. Beams has made a series of observations on the action of certain antispasmodic drugs on the motility of the human stomach and intestine.[1] In 95 per cent. of 200 subjects examined, X rays showed cessation of peristalsis and diminution of tone after administration of nitrites. A similar effect was seen in dogs, in which the isolated segments of gut were found to be depressed through a direct action upon the intestine itself. The effect of antispasmodic drugs was then tested upon certain spastic conditions of the alimentary tract such as cardiospasm, pyloric spasm, and colon spasm. Eighty-three patients in all were examined. The drug to be tried was administered during the radiographic examination and the results were compared. Of five patients suffering from cardiospasm, only two showed any relaxation with either atropine or nitrites. In pyloric spasm, atropine and nitrites were about equally effective, though about half the cases failed to respond to either drug. In colon spasm the nitrites proved their superiority, for of 30 patients treated with sodium nitrite 22 showed a relaxation of spasm; whereas of 24 treated with belladonna, only 13 gave an appreciable response. Thus these results indicate that nitrites have a greater antispasmodic influence over the colon than over the cardia or the pylorus. Beams goes on to suggest that the use of amyl and sodium nitrite may prove of diagnostic as well as therapeutic value, since they may be employed in differentiating pain due to muscle spasm from pain due to inflammatory processes with peritoneal irritation, and in distinguishing between organic and functional deformities. In treatment his results lead him to conclude that for cardiospasm and pyloric spasm belladonna is much more valuable than sodium nitrite, whereas in colon spasm the latter gives better results. A large proportion of his patients suffering from this condition were relieved by sodium nitrite within a week or two, although other treatment had previously failed. The doses used in the comparison were: sodium nitrite, gr. 1, three or four times a day; extract of belladonna, gr. $\frac{1}{6}$; and atropine sulphate, gr. 1/100; so the full therapeutic effect of the latter drugs should have been obtained. The use of amyl nitrite in acute attacks of pain due to spasm and of sodium nitrite in less urgent cases has advantage in ease of administration and perhaps rapidity of action.

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[1] Reprint from Indian Medical Gazette, 1930, lxv., 671.

[1] Jour. Amer. Med. Assoc., Sept. 26th, p. 907.

From the radiologist's point of view Dr. W. W. Fray[2]—who says that amyl nitrite acts irregularly—has studied the effect of ephedrine on tone, peristalsis, and spasm in the stomach and duodenum and has compared it with atropine. He finds that it "accomplishes much the same objective result that is seen after atropinisation, though its mode of physiologic action is different." Neither atropine nor ephedrine, he says, should be regarded as a specific diagnostic agent in the differentiation of intrinsic from extrinsic lesions; for both may relax spasm in the presence of local organic disease yet fail to relax reflex or functional contractions. If relaxation is attempted ephedrine has the obvious advantage that it acts rapidly by mouth; but whatever method is used for the study of spasm, Fray strongly recommends a second examination on a succeeding day. A functional spasm will probably have changed in appearance.

OCCUPATIONAL NEUROSES.

Dr. C. P. McCord[3] has examined 1000 office workers, 1000 factory operatives employed at engineering work, and 165 train despatchers. The third group is small for purposes of comparison, but probably this could not be helped. The occupation of the office workers was of the usual sedentary kind; that of the factory workers was physical, with little or no mental strain; while that of the train despatchers involved an exceptional degree of emotional tension. These men sit at a desk, wearing a telephone receiver over one ear, and receive as many as 200 items per hour for record or decision that may involve life and death for passengers or for crews. They may not leave their desks or remove their earpieces, sometimes for as long as eight hours. Clearly this occupation is one which involves constant and considerable nervous stress. McCord found among them a 67 per cent. incidence of occupational nystagmus, a 52 per cent. incidence of occupational deafness, largely in the phone ear (the left), and a high incidence of telegraphists' paralysis among those older men who had worked Morse instruments. What was most striking, however, was that cardiovascular abnormalities were present in some 82 per cent. of these train despatchers, as compared with 36 per cent. among the office workers, and 31 per cent. among the factory operatives. Here McCord seems to have met one aspect of the situation disclosed by the investigations of the Industrial Health Research Board, when a similar proportion of the working population was found to be suffering from recognisable emotional instability. That secondary cardiovascular disturbances may serve as a measure of such instability was a commonplace to those who treated ex-Service patients suffering from "soldiers' heart" or "D.A.H." Of more specific interest is the light thrown upon our own problem of miners' nystagmus b observations on train despatchers, whose eye constantly scan a large paper train-sheet, into thousands of small rectangles, which is continually being moved back and forth and up and down, and upon which they must make their records. They suffer from a syndrome characterised by nystagmus, blepharospasm and ocular discomfort, tremors, tachycardia, and symptoms of anxiety neurosis. This description would apply as well to miners' nystagmus, except that McCord does not specifically include in the symptoms of ocular discomfort that subjective movement of objects of which miners complain. Another example of this syndrome was described by Tedeschi,[4] who found in maritime crane workers at Genoa a neuropathic disorder, associated with nystagmus, which he attributed to constant ocular stress together with responsibility and danger. Thus in three occupations at first sight different in almost every respect we find as a common element the constant apprehension of danger—an element sufficient in itself to produce a psychoneurosis, one of the symptoms of which is determined in these examples by a special physical stress falling upon the ocular system. Both McCord and Tedeschi assume that the anxiety neurosis is produced by stress and strain, in striking contrast to the assumption, hitherto accepted without question in this country, that the anxiety symptoms shown by the nystagmic miner—the so-called neurasthenia—were in some unexplained way due to the oscillation of his eyeballs. This difference of outlook is important, for if we neglect the influence of danger and mental stress and pin our faith upon improved illumination as a sure preventive of anxiety states in coal-miners we shall be disappointed. By all means let us improve illumination, thus furthering the amenities of an unpleasant and dangerous occupation and removing the optical conditions that produce oscillation with its discomfort and disability. But the psychoneurotic element in the syndrome known as miners' nystagmus will still have to be reckoned with.

PITUITARY AND CANCER.

In a paper in last week's *British Medical Journal*, Dr. William Susman suggests that the pituitary gland plays an important part in the causation of cancer. The idea that one or more endocrine organs have "something to do" with cancer is not a new one, but as a rule it is based more on speculation than on evidence. Dr. Susman came to implicate the pituitary as a result of an extensive study of all the endocrine organs in a large number of patients 30 of whom had cancer. From his observations he concludes that in cancer there is an overactivity of the anterior lobe, which is supposed to stimulate growth, and a disturbance in the functional activity of the posterior lobe, which is believed to restrain growth. From changes in the pancreas he deduces that in cancer there is also an increased demand for carbohydrates. The validity of his views he has tried to test by experiments on mice, but the experiments are, as he admits, too few to be convincing, and more interesting are the clinical results obtained in cancer patients with injections of pituitrin, which was supposed to inhibit the overactivity of the anterior lobe. These injections were combined with a diet poor in carbohydrate, and later with injection of an ovarian extract (theolin). Of five cases so treated four showed a slight improvement, while in one there

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[1] Amer. Jour. Med. Sci., September, 1931, p. 387.

[3] The Heart Problem of the Worker. By C. P. McCord. Read at the 41st annual meeting of the Association of Life Insurance Medical Directors of America. New York, 1931. Pp. 28.

[4] Ramazzini, October–November, 1938.

a definite separation of the tumour from the surrounding tissue.

Most students of cancer find it difficult to understand how a disease such as cancer, which is strictly localised at its inception, can be caused by the failure of a growth-regulating mechanism which operates through the blood stream. Even in the adult organism processes of normal growth are still proceeding—e.g., in the lymphoid tissues, in the mucous membranes, and in the genital organs. If the appearance of cancer was associated with the failure of disturbance of a mechanism regulating normal growth, one would expect disturbances of normal growth in the organs just mentioned. Moreover, one would expect to find cancer in some of the syndromes of anterior lobe dysfunction which are described at length by Prof. C. G. Lambie and Dr. B. P. Wiesner in the *Edinburgh Medical Journal* for November. These are a priori objections, but they demand convincing evidence, experimental or clinical, before they can be dismissed as irrelevant, and before the pituitary or any other organ can be implicated in the ætiology of cancer. With that reservation it may be admitted that the results obtained by Dr. Susman are suggestive enough to justify further research along the lines laid down by him. So those who have had extensive experience in the treatment of inoperable cancer by the most diverse methods know that the first application of a new treatment to a cancer patient will sometimes be followed by a striking temporary improvement but that the same treatment will fail completely when applied subsequently to numerous other apparently similar cases. This should always be borne in mind in appraising the significance of attempts to influence the growth of cancer in man by new therapeutic measures.

THE NOBEL PRIZEMAN,

THE Nobel *Prize for Medicine is this year to be* awarded to Prof. Otto Warburg, of Berlin. A prominent member of the Kaiser Wilhelm Gesellschaft für Forderung der Wissenschaften, he was until a year ago the scientific director of that section of the Kaiser Wilhelm *Institut für Biologie at Berlin-*Dahlem dealing with cell-physiology; this and cognate subjects having constituted the main part of his important contributions to science over the past 20 years. These researches, many of which have been embodied in his two volumes of collected work,[1] have been conceived on the very broadest foundation, and are remarkable for the clarity of thought combined with great experimental skill which their author has brought to bear on a previously obscure section of biology.

Prof. Warburg's earlier work was largely concerned with the study of catalysis, his name being particularly associated with the applications of this study to catalysis in living cells, and the problems of the action of chemically indifferent narcotics on the one hand, and of the specific anticatalysts or catalyst poisons on the other. This work led naturally to his more recent study on the problems of respiration and fermentation in living animal and vegetable cells. He formed the view that the processes of respiration and sugar-cleavage, among other vital reactions, were catalysed by complexes consisting of a particular type of organic compound of a heavy metal such as iron. In the case of respiration of tissues, he has carried the analysis of the problem further by a recent and characteristically bold investigation, taking advantage of the light-sensitive properties of compounds of iron with carbon monoxide, in order to determine the absorption spectrum of the essential iron complex or respiratory enzyme. The compound, contained to the extent of only 1 part in 100,000,000 in cells, appears to be an iron-porphyrin compound, in which the porphyrin group is more closely related to the chlorophyll type than to that present in hæmoglobin. It is therefore not too much to say that through his work more is known of the probable chemical structure of the respiratory enzyme than of that of any other similar active agent present in living cells—a remarkable triumph when one considers the almost infinitesimal amount which this iron-complex constitutes of the total mass of the cells.

Important contributions have also been made by Prof. Warburg to the problems of photosynthesis and carbon dioxide assimilation by green plants. In the field of medicine, however, for practical reasons, the main interest centres inevitably around his work on the metabolism of cancer tissues. It was not until 1923 that the remarkable extent to which living tumour cells are able to convert carbohydrates into lactic acid was discovered. In that year Warburg found that these cells may produce as much as one-tenth of their own weight of lactic acid in one hour, an observation that has since received abundant confirmation. The significance of this aerobic lactic acid production is as yet incompletely realised, and it is not possible to do justice to its implications in a short space. It seems likely, however, that it may furnish an additional source of energy, at the expense of which the tumour cells can survive under conditions where normal cells would perish.

A year ago Prof. Warburg was appointed director of the new Kaiser Wilhelm Institut für Zellphysiologie at Dahlem. This building was supported by the funds of the Rockefeller Foundation, in order that he might there continue his work on the fundamental life-processes which eventually may well prove as important to practical medicine as it has already shown itself to be in the fields of pure biological and biochemical research.

VACANT BEDS IN LONDON HOSPITALS.

THE statistical review of the work and finance of the London hospitals,[1] just published by King Edward's Hospital Fund for London, shows that voluntary gifts to hospitals, including legacies, increased from £1,689,000 in 1928 to £1,836,000 in 1930. There was, it is true, some decrease in 1930 compared with 1928 and 1929 in the amount received from the general body of subscribers and donors, but this was more than set off by the receipt of a large single donation of £100,000. Notwithstanding an advance of £131,000 in the total running expenditure, due to progress in various directions, including the upkeep of 350 additional beds, the aggregate surplus of income over expenditure in 1930 was £80,000. The report contains a valuable appendix on unoccupied beds, in which it is pointed out that any improvement in the percentage of beds occupied would in effect be as valuable as the building of additional bed accommodation. During the year 1929, with an average complement of 15,952 beds in London voluntary hospitals, on an average 519 were closed daily, and 2057 were vacant daily between the discharge and admission of patients. The causes of closure in the first and smaller group included building, reconstruction, difficulty of providing nurses, cleaning, repairs, infection, and staff holidays. Closure of this kind is not regarded as an index of efficiency. Beds vacant numbered four times as many as beds closed, and were distributed thus among the various classes of hospital beds.

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[1] Über die Katalytischen Wirkungen der lebendigen Substanz, Berlin, 1928: The Metabolism of Tumours. Translated, with additions, by F. Dickens, Ph.D. London: Constable and Co., 1930.

[1] To be obtained from the office of the Fund, 7, Walbrook, E.C. 4. Post free 1s. 3d.

Percentage of beds vacant between discharge and admission.

Medical	10·4	Accident	17·5
Surgical	11·0	Isolation, observation, and septic	36·9
Medical and surgical	15·8	Pay beds	25·1
Maternity	10·3	Staff beds	53·0
Gynæcological	9·6		

It is of course to the interest of the hospital that certain classes of beds—e.g., isolation, septic, and staff beds, should be as empty as possible. If a hospital, too is to make adequate provision for accident and other emergency cases it is essential to reserve a certain number of empty beds for them. The high ratio of vacancy in pay beds which exists at most hospitals is ascribed to the facilities in this direction not being yet sufficiently well known. In general the causes leading to vacant beds may be divided into three categories: (1) The main cause in the more highly organised hospitals is to be found in the apportionment of beds for special classes of cases for which the demand is variable, without a definite system of admission of other cases to these beds as circumstances may demand, when such admission is practicable. In some cases the vacancies may be caused by the postponement of a patient's admission to suit the time-table of a surgeon. In other cases the vacancy may be due to failure on the part of the hospital to control as far as possible the loss of bed-days due to causes originating with the patients. (2) Failure to accept or delay in accepting admission when notified of a vacancy. Linked up with this is disinclination on the part of many patients to be in hospital during holiday periods. (3) Vacancies may be due to the necessity of providing beds for which a variable demand may exist and which cannot be allocated to other purposes, either on account of the nature of the case—e.g., beds in a fever hospital, or because the demand is only known from day to day as it emerges—e.g., the daily provision of beds for accidents. By drawing attention to the results of this inquiry the Fund hopes to effect some improvement in the percentage of beds occupied.

MEASLES.

DURING the past four years in London measles has caused eight times as many deaths as scarlet fever and one and a half times as many as diphtheria. During each biennial epidemic some 50,000 children are affected and about 10,000 of them have to be admitted to the London County Council's hospitals. This season's outbreak, if it follows the usual plan, will begin during the late autumn, reach its meridian during March and take six or seven months to complete the circuit of London. Faced with this immense problem the authorities have begun by drawing public attention to the dangers of the disease and by circulating certain excellent rules for its management. "Every effort," they say, "should be made to postpone the contraction of the disease until after the third or preferably until after the fifth year of age, for the younger the child the greater is the risk of serious illness arising from broncho-pneumonia or other complications. Adequate medical, nursing, and hygienic care are the most important means for preventing complications and a fatal outcome. The disease is particularly fatal among children under-nourished and living under unfavourable conditions. Special methods of control must be applied to prevent or ameliorate the disease in such children." These statements will, we hope, help to correct many of the misapprehensions about measles which are so common. But there still remains an unnecessary cloud of pessimism among the public at large. It seems extraordinary that our most influential newspaper should be able to tell its readers (on Tuesday) that measles "remains almost wholly unpreventable"; for in last week's LANCET (p. 977) Dr. S. P. Bedson was able to show that this is a disease unusually easy to prevent or modify. In 1926,[1] in discussing its prophylaxis by serum and whole blood, we devoted a good deal of attention to the academic problem of whether it would be wise to eliminate measles and thus perhaps reduce the national immunity. But at the present rate of progress this does not seem to be a pressing danger.

MR. BERNARD LAMB.

MEDICAL men throughout the country will regret to hear of the death which occurred, after an operation for appendicitis, on Oct. 30th, of Mr. J. Bernard Lamb, who was for over 40 years the secretary of the London office of Epsom College. Mr. Lamb devoted his life to the Royal Medical Foundation attached to Epsom College, and his signature at the foot of appeals for funds represented but a small part of his duties as he interpreted them. His extraordinary sympathy with those who desired to introduce their claims upon the Foundation involved him in inquiries of the most delicate sort, and when those in whom the responsibility was vested of adjudicating upon these claims had to inquire into the merits of the case, it was always found that he could supply the fullest information for their guidance. It is no exaggeration to say that the impartiality with which the benefits of the Foundation have always been administered was made possible mainly by Mr. Lamb through his assiduity, his deep compassion for the hard case, and his shrewd appreciation of the measure of that hardness. It is sad to think that he died within one month of his retirement on a pension. A Requiem Mass was said for him at St. Dominic's Priory, Southampton-road, N.W., on Nov. 3rd.

THE next session of the General Medical Council will commence at 2 P.M. on Tuesday, Nov. 24th, when the President, Sir Donald MacAlister, will take the chair and give an address.

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[1] THE LANCET, 1926, i., 669.

CLOSING OF HIGHBURY WAR HOSPITAL.—In January the Ministry of Pensions will close Highbury, King's Heath, the last of the Birmingham war hospitals, partly as a measure of economy and partly by reason of the decreasing number of men requiring treatment. Highbury was originally the residence of Mr. Joseph Chamberlain, and was sold by his family to trustees charged, when it is no longer needed for its original purpose, to use it for such public purposes as they and the corporation of Birmingham may determine. From March 1st, 1919, to Sept. 30th last the hospital received 12,808 patients. There now remain only 65, whose destination has not yet been decided upon.

SPECIAL ARTICLES

AMERICAN COLLEGE OF SURGEONS:

CONGRESS IN NEW YORK.

(FROM A CORRESPONDENT.)

THE American College of Surgeons held their twenty-first Clinical Congress in the new Waldorf-Astoria Hotel, New York, beginning Monday, Oct. 12th, and ending Friday, the 16th. Over 5000 surgeons and hospital executives attended. Clinics were held at practically all the hospitals of New York and Brooklyn, and meetings and conferences on almost every aspect of surgery and hospital management took place in the Waldorf-Astoria Hotel. The meeting was so immense and its discussions of so wide a range that only a few of its more especial features can be considered.

At the inaugural meeting in the Waldorf-Astoria Hotel on the evening of Oct. 12th, Dr. C. Jeff Miller, New Orleans, the retiring president, gave an address on Medical Men and their Lay Critics, in which he deplored the evils of State control, and expressed his doubts of the practicability of health insurance and State control in the United States. Dr. Allen B. Kanavel, Chicago, the president-elect, chose as title for his address, Fundamentalism and Social Progress in Medicine, and held a view different to that of his predecessor. He pointed out that social conditions were changing, and that the medical profession must adapt itself to the altered situation, and not be unbending in its opposition to some modifications of the system of medical practice that were intended to ensure equally to the indigent, the man of moderate means, and the wealthy, competent diagnosis and treatment; it should be possible for medical men to adjust their professional work and yet retain their self-respect and the respect of the community. The physicians in charge of any public service must receive compensation commensurate with the years necessary for the adequate study of medicine. Public service, he considered, must be accompanied by work at voluntary or private institutions, and by private practice, if the high standards of medicine are to be maintained and the continued advance of the frontiers of medical knowledge ensured.

Mr. Arthur H. Burgess, professor of clinical surgery, Manchester, gave the Murphy oration, and associated Murphy's name and work with the principles of urinary surgery in an interesting address that was much appreciated by the audience.

A paper was read on the evening of Oct. 13th by Dr. George W. Crile (Cleveland) on the technique and end-results of denervation of the adrenal glands for neuro-circulatory asthenia. In the Cleveland Clinic Dr. Crile and co-workers, after experimental investigations into the adrenal sympathetic system, and on analogies drawn from operations on the thyroid sympathetic system, have sought to control certain analogous energy transforming diseases, particularly those due to pathological activity of the adrenal sympathetic system. In this field they have performed operations on the adrenal sympathetic system in 126 patients. This paper dealt only with the results of one group, that of neuro-circulatory asthenia. Dr. Crile pointed out that the condition designated as "soldier's heart," because it was very common during the late war, occurred more or less frequently in the stress of civilian life. It resembled, he said, mild hyperthyroidism, especially where a goitre and a moderate increase in basal-rate were present. The end-results of denervation of the adrenal glands in "soldier's heart" he gave as follows. Of 21 cases of bilateral denervation done at the Cleveland Clinic during the past 18 months, 18 have remained well up to date, in two cases end-results were negative, while one patient could not be traced. By the same surgical procedure Dr. Crile stated that symptoms of peptic ulcer had been relieved immediately, and acidity reduced in all the cases observed.

On the evening of Oct. 15th Dr. W. E. Gallie (Toronto) described his experiences with the transplantation of fascia in the repair of hernia. He said that ten years' experience in the use of sutures of fascia lata in the repair of ventral and diaphragmatic hernias had demonstrated that the method is sound. He analysed the results, which showed a high percentage of cures among cases in which recurrences had been common, and described a method of introducing sheets of fascia into large openings in the abdominal wall and diaphragm, while he reported an extension of the method in cases of undescended testis.

There were two special symposiums, one on cancer on Oct. 15th, and one on industrial medicine and traumatic surgery on Oct. 16th, both of which were largely attended. Sir Charles Gordon Watson, in discussing cancer of the colon, sounded a note of warning with regard to the use of radium in the treatment of cancer. He pointed out that radium therapy was still in its infancy; and could not achieve the impossible, while it demanded a skill that experts could only be expected to command, even after a long training. Dr. Donald Balfour said that he was convinced that the treatment of cancer of the stomach would become more and more efficient. Complete relief extending over a five years' period was now obtained in 50 per cent. of cases in which the lymphatics were not involved, and the records of the Mayo Clinic showed 278 five-year cures following resection for cancer of the stomach. From the standpoint of palliation, surgery could offer so much to the patient with cancer of the stomach, that these facts should be constantly reiterated to both the public and the medical profession. Sir G. Lenthal Cheatle was not optimistic as to the results of radium in the treatment of breast cancer; and while speaking of the supreme importance of early diagnosis, Dr. Burton J. Lee (New York) advocated the establishment of diagnostic clinics.

The symposium on industrial medicine in relation to traumatic surgery proved of high interest, and 17 papers were read at the meeting. Among these were several by laymen, who took up the subject from the points of view both of workmen and employers. The governor of New York State, Mr. Alfred E. Smith, who is Democratic nominee for the Presidency of the United States, said: "We have travelled far in learning new methods of caring for the public health. In the last 25 or 30 years we have learned the meaning of preventive medicine, and we have learned more about the causes of disease. But it is difficult to carry knowledge to every home. Too many people are still ignorant of the importance of calling in a physician. They do not realise the importance of that early stitch which saves nine others. Such a body as the American College of

Surgeons can do much to further disseminate that knowledge. There is no asset of the State above and beyond a healthy citizenship. Health begins before the cradle in the care of the mother, and then of the infant from the hour of its first breath."

At the Convocation on Oct. 16th, Honorary Fellowships were conferred on Dr. H. v. Haberer, professor of clinical surgery at Cologne, Mr. A. H. Burgess, and Sir Charles Gordon Watson. The presidential address was delivered by Dr. Allen Kanavel on the Program of the College and the Initiates' Responsibility; and the Fellowship address on "Medicine and the Contemporary Social Order" was delivered by James Angell, president of Yale University. Dr. J. Bentley Squier, professor of urology at Columbia University, was elected president for 1932, with Dr. Charles Gordon Heyd and Dr. Gallie as vice-presidents.

The success of the meeting reflected the greatest credit on the organising ability of Dr. Franklin H. Martin, director-general of the College.

THE LÜBECK TRIAL.

(FROM OUR BERLIN CORRESPONDENT.)

(Continued from p. 986.)

THE trial is being prolonged far beyond expectation by the endeavour of counsel for the accused to convince the court that the death of the children was due not to human error but to recovery by the bacilli of their original virulence. This endeavour has turned the court more and more into a medical gremium discussing the pros and cons of the value of B C G vaccine. Prof. Calmette, it seems, has declared that he would decline to appear before the court if summoned, as the vaccine used in Lübeck was not prepared in accordance with his instructions. The court would therefore not be in a position to give an opinion on the efficacy of genuine B C G.

Nurse Schütze, the laboratory assistant of Prof. Deycke, and the fourth person to be indicted, has admitted in examination that the medical and nursing staff and even the servants of the hospital could freely enter the rooms where many strains of bacilli were preserved. It was stated that on the same table cultures of human tubercle bacilli, Friedmann's turtle bacilli, and B C G stood together for several days. The public prosecutor asked why a tube with human bacilli found in the laboratory was not labelled, whereupon Nurse Schütze replied that the label had fallen off owing to the heat and was later fixed again on the tube. The incubator was shut but the key could easily be found by anybody entering.

The examination of the accused being concluded witnesses were called. Senator Mehrlein, a member of the Lübeck government with special charge of hygiene and hospital matters, explained how the Calmette procedure came to be introduced. When Dr. Altstädt proposed that the B C G should be given to children for prophylactic purposes he had asked him whether the method had been tested in animals. The reply was yes. He had not been informed that in Paris the vaccine was produced in a special laboratory. He had instructed Dr. Altstädt to find out local medical opinion. Dr. Jannasch, physician to the Lübeck Hospital, had accordingly read a paper before the local medical society which had unanimously agreed to the introduction of the Calmette method into general practice. Herr Mehrlein did not then know that of 130 medical practitioners only 35 had attended the meeting. Dr. Jannasch gave evidence that he had stated before the Lübeck medical society that B C G vaccine was innocuous but that he could not say beforehand whether it would prove efficacious.

The court then transferred the sitting for a day to the laboratory of the hospital to study the methods adopted there and to ascertain whether an adulteration of the vaccine was possible. Prof. Deycke explained how the B C G cultures were preserved. Questioned why they were kept in the same incubator with other cultures he answered that a special incubator for every strain of bacilli did not exist even in the most lavishly furnished American universities. Prof. Kolle asked whether registers of the cultures and especially of the B C G were kept in the laboratory. Nurse Schütze explained that she had made notes, which were accordingly handed over to the court. Prof. Deycke demonstrated how he had treated the original B C G received from Paris.

After return to the court-room some midwives were examined. One of them gave evidence that the tubes received from the laboratory were closed by a glass cork but not as reliably as it is usual with licensed chemists. Sometimes the parents, without the help of a midwife, had given the vaccine to the infants. Another midwife declared that someone representing the parents had told her that the midwives might be prosecuted if Dr. Altstädt were acquitted, and that therefore it would be in her own interest to try to remember everything. Dr. Altstädt had told them especially about the innocuity of the B C G and how long its immunising effect would last.

Dr. Hamel, president of the German Health Office, was then examined. His office had, he said, in 1927 advised to postpone the introduction of the Calmette procedure until the results of further research were known; this decision had been sent to the governments of the individual States, including Lübeck. The office is, of course, an advisory body without executive powers. Its decision however had not been altered. Questioned further he said that the Health Committee of the League of Nations had stated that B C G was innocuous. He knew that B C G had been tried in Germany several times, but only, he thought, in infants from tuberculous families, the cultures being purchased direct from the Pasteur Institute. In Lübeck B C G was introduced on a large scale without any information being sent to his office.

YORK MEDICAL SOCIETY.

CENTENARY CELEBRATION.

THE York Medical Society, on Thursday, Oct. 29th, celebrated its centenary. In the afternoon a large company of the members and their friends assembled in the Tempest Anderson Hall when Mr. Gerald Hughes, the President, supported by Lord Moynihan, received the invited visitors, among whom were the Dean of York; Prof. Bower, lately President of the British Association; Mr. D. P. D. Wilkie, professor of surgery in the University of Edinburgh; Dr. Watts Eden, President of the Royal Society of Medicine; Mr. Herbert Tilley, President of the Medical Society of London; Dr. W. G. Willoughby, President of the British Medical Association; Dr. Arthur Hawkyard, Lord Mayor of Leeds; Sir William Lister, Dr. Geoffrey Holmes, and Sir Squire Sprigge.

Mr. Hughes opened the ceremonies with a brief address in which he alluded to the antiquity of the

Society, which, he said, throughout its extended existence, had played a great part in keeping the local profession keen in work and high in ideals, thus playing a part in bringing the science of medicine to its present standard. He noticed also, in reference to the presence of Prof. Bower, that the British Association was founded at York. Lord Moynihan, who was announced to deliver an Oration, then gave a running commentary upon a striking collection of pictures, thrown on the screen, which illustrated the continuity of disease throughout immeasurable time and the successful application of surgery to various injuries and fractures. He concluded with an eloquent estimate of Lister as the greatest man of science the world had ever known. A vote of thanks, proposed by Dr. Watts Eden, and seconded by the Dean of York, Dr. Lionel Ford, was accorded with enthusiasm. The company then attended a reception held by the President in the Guildhall, after which many of them were conducted round the Minster by the Dean.

In the evening the annual dinner of the Society was held at the Royal Station Hotel, York, when Mr. Hughes presided and was supported by, among others, the Archbishop, the Dean, the Lord Mayor, the Sheriff of York, and Mr. Richard Lumley, M.P., the newly elected member for the city.

After the loyal toasts Mr. E. R. Dodsworth proposed the toast of the Archbishop, Clergy, and Ministers of All Denominations, when Dr. Temple replied in studiously simple terms, urging the need for unity between the clergy and the medical profession. Recognising that it was not possible to divide bodies and souls, he said that if the Church and the profession of medicine attained to a fuller understanding of the services rendered by each other, a harmonious coöperation of great value to mankind would result.

The toast of the Orator of the Day was proposed by Sir Squire Sprigge, who described Lord Moynihan as orator, scholar, surgeon, and man of the world. The audience were asked to compare the position of surgery when Lord Moynihan received his first qualifications and that which it enjoyed now. Although, he said, Lord Moynihan had seen no pre-Listerian era, he began work when the possibilities opened up were hardly realised and when the modern surgery of the abdomen, brain, and thorax remained to be done. In the huge progress that had taken place he described Lord Moynihan as having played the part of a great inventor as well as a great performer. Lord Moynihan, in reply, dwelt on the development of surgery which had followed the institution of the Association of Surgeons, through which, he said, surgeons were brought together not only by professional ties but by ties of personal friendship. The Association and its Journal had made of surgeons a band of brothers, while the disciples of Lister had rendered British surgery the safest and best in the world, and surgery the greatest of the arts.

The toast of the Guests was proposed by Dr. Henry Yellowlees in humorous terms, and was replied to by Prof. Wilkie, who expressed the thanks of the guests for the hospitality received not only at the banquet but throughout the day. He caused much amusement by saying that, as far as the banquet was concerned, he had been, in thrifty fashion, keeping a private centenary of his own, because 1931 happened also to be the 100th year of the existence of his University Chair. Dr. Hawkyard proposed the continued prosperity of the Society, speaking as President of the Leeds and West Riding Medico-Chirurgical Society, when Mr. Hughes briefly replied.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

THE HOSPITALS SWEEPSTAKE.

THE drawing of prizes in the Irish hospital sweepstake on the Manchester November Handicap is to take place next week. At the time of writing the precise amount of funds available for prizes and for the hospitals interested has not been made public, but it is understood that in both cases the sums are slightly less than those available from the last sweepstake, though more than those from the previous one. Last week the Minister for Justice published the names of the members of the committee of referees which is, in future, to advise him as to the distribution of the moneys available for the hospitals. The chairman of the committee is Mr. Peter Hughes, formerly Minister for Defence of the Irish Free State, and his colleagues are Mr. Vincent Kelly, an architect of high standing, and Mr. Henry Mangan, formerly accountant to the Dublin Corporation. One may remark with some surprise that there is no medical man on this committee, particularly in view of the fact that the committee is empowered to visit and inspect the hospitals, as well as to inquire into their accounts and their needs. A private Bill has been introduced to the Dáil with the intention of permitting charitable nursing associations to benefit by the sweepstakes. It is proposed that of the proportion of the proceeds which should go to rate-supported institutions, 5 per cent. should be made available for nursing associations.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

ENCEPHALITIS AFTER VACCINATION.

THE German Health Office has made an investigation into alleged cases of encephalitis and other nervous disorders following vaccination. The inquiry covers the four years 1926–1929, when 102 cases were notified. Of these, nine were not accepted by the Commission because encephalitis developed long after vaccination. In ten cases, eight of which were fatal, no opinion could be given because the history was inadequate. Six cases again were attributable to other diseases, such as tuberculosis, septicæmia, and pneumonia. Of the remaining 77, 73 had been vaccinated and four revaccinated. In 59 of the vaccinated cases the condition notified was encephalitis. In ten of them the diagnosis was made at post-mortem examination, in 43 others it was certain owing to the clinical symptoms, and in the remaining six it was probably correct. Among the 14 cases of other disorders of the nervous system the diagnosis was verified in four by post-mortem examination. The diagnosis was confirmed at autopsy in one of the four revaccinated cases; in two of them it was doubtful. During the four years there were more than a million vaccinations and a million revaccinations, and there were 27 deaths.

THE ZONDEK-ASCHHEIM REACTION.

The disadvantage of the Zondek-Aschheim reaction for pregnancy is that it becomes manifest only after about four days, a drawback especially in urgent cases such as in extra-uterine pregnancy. Prof. Zondek, in the *Klinische Wochenschrift*, announces

PUBLIC HEALTH SERVICES

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		All causes.	Tuberculosis.	Cancer.	Respiratory diseases with influenza.	Heart disease.	Infant and neonatal mortality.	Young child (1–5 yr.) mortality.	Maternal mortality in childbirth.
Hull .. .. (305,600)*	20·6	12·5	1·29	1·35	1·7	2·1	69/31	39	4·4
Portsmouth.. (242,000)†	16·3	11·8	1·02	1·38	1·4	2·4	59/25	39	2·6
Leeds .. .. (478,500)†	15·8	12·4	1·11	1·53	1·7	2·3	68/38	26	4·2

* Estimated (R.-G.) for 1930 and adjusted for extension of City on April 1st, 1930. 1931 Census figure 313,366.

† R.-G. estimates for 1929. 1931 Census figures 249,288 and 482,789.

Registered stillbirths per 100 live births: Hull, 4·1; Leeds, 4·4.

Hull.

Dr. W. M. Frazer's report shows that the city of Kingston-on-Hull has before it a difficult problem of hospital reorganisation. The corporation has inherited from the Hull and Sculcoates boards of guardians two institutions of the mixed type, of which the hospital and house portions cannot be separated. These have been renamed the Anlaby-road and Beverley-road institutions. The main part of the former was built in 1851, with additions to the hospital in 1882 and 1914. The latter was built in 1837 and a new hospital was being considered when the war broke out. Both these institutions have serious defects according to modern standards and the accommodation for the nursing and domestic staffs is unsatisfactory. They treat about two-thirds of the general hospital cases in the city. Anlaby-road has a nucleus of 345 satisfactory beds with a modern operating and X ray block, and a scheme is in hand for remodelling it for use as a municipal general hospital. Towards the end of the year a self-contained block was being adapted for the radium treatment of cancer and it was hoped to open this block in May, 1931. Patients suffering from pulmonary tuberculosis have been sent to Anlaby-road, while surgical tuberculosis and venereal diseases have been sent to Beverley-road. The maternity wards at both institutions have been closed and the work transferred to the municipal maternity home which has been adapted from the old hospital for infectious diseases in Hedon-road. This maternity home includes an infants' hospital and has 49 beds for maternity cases, 10 for puerperal sepsis, 2 for venereal diseases, 16 for dietetic diseases in infants, and 8 for nursing mothers. Healthy children under the age of three have been removed from the institutions to a new nursery.

The new hospital for infectious diseases was opened in 1930 with 112 beds and an addition of a 38-bed pavilion and a block of 10 cubicles will be ready for occupation in the middle of 1931. Other additions will be made until 374 beds have been provided for infectious diseases. Experience of working the two institutions since the transfer has shown that the total hospital beds in Hull are insufficient to meet the needs of the area. A scheme has been sanctioned for an orthopædic hospital with 100 beds at Cottingham, which will supply a long-felt want and render it unnecessary to rent beds in outside institutions. Full coöperation with the voluntary hospitals can hardly be obtained until the council have arranged the programme for dealing with their own institutions, but evidence of coöperation is the appointment of seven members of the honorary staffs of the voluntary hospitals as consultants at the municipal hospitals. The arrangements for operative surgery at the municipal institutions and the X ray work of the health and school medical departments are very satisfactory both as regards personnel and equipment. No alterations have yet been made in medical out-relief, and applications both for admission to the transferred institutions and for out-relief are made through the relieving officers. It is proposed ultimately to have separate casual wards near the outskirts of the city.

In March, 1930, a survey of insanitary houses was completed, showing that 3445 houses should be dealt with, either individually or as unhealthy areas. About 60 per cent. of the tenants said they were willing to pay 6s. to 8s. a week in rent, but in the case of casual labourers, of whom there are a good many working at the docks and for whom it is important to be near their work, there was unwillingness to accept a corporation house except in a suitable district. *Most of the condemned houses* are within three-quarters of a mile of the Guildhall, where there is a lack of open spaces for recreation. The five-year programme includes 7300 municipal houses, of which 3800 are for new housing and 3500 for slum clearance. The slum clearance schemes will involve the displacement of 14,000 persons and before the end of the year four of the worst areas had been represented. There is still much overcrowding and legal action against it simply results in the transfer of the overcrowding from one house to another. The privy conversion scheme has been completed and is now proceeding in the area of 4033 acres added to the city on April 1st, 1930.

Dr. Frazer notes an increase in both notifications and deaths from diphtheria, 856 cases with 47 deaths. Larger doses and earlier administration of antitoxin appear to be resulting from the issue of a leaflet to the doctors. Measles was very prevalent during the fourth quarter. There were 100 deaths, of which 86 occurred under 5 years of age, and 14 between 5 and 15 years. During the last three years the cases of enteric fever numbered 4, 7, and 9, but in 1930 the number rose to 35, of which 27 were in the first half of the year. A very full investigation of the circumstances of these cases revealed no cause for the increase. The age-period 15 to 25 has not shared to the same extent as other age-groups in the decline of the death-rate from tuberculosis, and the rate amongst females is higher than amongst males. The cause of this higher mortality among females is still obscure. At the V.D. clinic, diathermy gives most encouraging results in males suffering from orchitis, joint conditions, and prostatic infections, both old and recent.

Portsmouth.

Dr. A. Mearns Fraser says the poor-law medical services have been delegated to the public assistance committee with instructions to report as soon as possible which of the services can be administered by existing committees of the council. At present the appropriation of St. Mary's (poor-law) hospital as a general municipal hospital is being considered. After this has been accomplished the required consultation with the voluntary hospitals will take place. Proposals are in hand: for increasing the beds at the Royal (voluntary) hospital from *190 to 250*; for increasing the beds at the isolation hospital from 206 to 290; and at the city mental hospital from 1014 to 1138. It is *also* proposed to provide a reception ward at St. Mary's hospital and a colony for mental defectives on Portsdown Hill, which will accommodate 320 and ultimately 500 patients. At present St. Mary's hospital is approved for 29 male and 31 female adult mental defectives. When these proposals are complete and the services effectively coördinated, Dr. Fraser thinks the hospital accommodation provided should be sufficient for the needs of the city. An out-patient clinic for mental disorders is conducted weekly at the Royal Hospital by Dr. T. Beaton, medical superintendent of the city mental hospital.

The allocation of 250 new municipal houses for rehousing the tenants of slum properties has completed the first instalment of the scheme initiated in 1929. In nearly every case the rents for the municipal houses were higher than the tenants had previously paid, yet the arrears at the end of the first year were less than 1 per cent. Closing orders made in 1930 numbered 314 and houses demolished in pursuance of demolition orders numbered 142. Inhabited houses number 57,591 and 1389 are owned by the corporation. The five-year programme includes the erection of 2300 new flats or houses—1000 for new housing, 600 to replace houses in unhealthy areas, 500 for tenants dishoused by demolition orders, and 200 to accommodate aged couples.

Diphtheria notifications numbered 605, and the 16 deaths are the lowest number recorded in the city for over 30 years. An outbreak of enteric fever among children occurred as the result of a Sunday school outing to Stakes Woods on May 29th. The children drank from a stream which ran through the woods outside the city. Those who contracted enteric fever numbered 19, and 5 of them had an attack of gastro-intestinal disturbance within a day or two of drinking the water, followed by an interval of good health, before the onset of enteric fever. The date of onset of the fever varied from the 13th to the 27th day after drinking the water. Fifty other children who drank the water were attacked by pain, diarrhœa, and sickness. The stream was found to be grossly polluted with sewerage and its condition was reported to the county-medical officer of health. In a few cases the illness was serious but all the patients recovered. At the beginning of the year three cases of psittacosis occurred, which were traced to a parrot purchased just before Christmas. The purchaser and his wife were taken ill about Jan. 9th, and the former died on the 18th. The doctor who attended them also contracted the disease and recovered after a grave attack. Dr. A. Cambell continues to report satisfactory results from treating late syphilis. Seventy-one such patients, whose infection dated back from 10 to 30 years, came under treatment. Some of them were parents of children under treatment for congenital syphilis. In all of them the Wassermann blood test was positive.

The municipal maternity home admitted 292 patients, an increase of 86 on the previous year. At the end of July a persistent outbreak of pemphigus neonatorum occurred and the home had to be closed from July 21st to August 11th, the patients being sent to St. Mary's Hospital. No further cases occurred on reopening. The total births numbered 4261, of which midwives attended 3112. The insurance scheme to meet the cost of medical aid was used by 1850 mothers. Medical aid was sent for in 39 per cent. of the insured patients and in 22·5 per cent. of the uninsured.

Two sites for a proposed abattoir were discussed in 1877 and instructions have now been given for the preparation of plans for an abattoir on the western side of the northern road. The public analyst, Mr. R. P. Page, is not satisfied with the jam standards fixed by a joint committee of the Food Manufacturers' Federation and the Society of Public Analysts.

Leeds.

Dr. J. Johnstone Jervis says that notwithstanding acute trade depression, the health of the city was never better than in 1930. The death-rate and infant mortality-rate were the lowest on record, and measles, whooping-cough, influenza, diarrhœa and enteritis, pneumonia and bronchitis caused fewer deaths than in any year of which a record exists. Diphtheria was the only infectious disease which caused anxiety. The number of notifications (994) was the highest since 1911 and the number of deaths (54) was the highest since 1920. There were 42 notifications of small-pox and the death was recorded of a female aged 77, who had been bedridden for years and whose death was certified from cerebral hæmorrhage and senility. It is doubtful if her mild attack contributed in any way towards her death.

But apart from vital statistics, 1930 was a disappointing year to Dr. Jervis. It was expected that the Local Government Act, 1929, would lay the foundation of a unified and improved public health and hospital service in the city. A scheme for the inclusion of the poor-law hospitals in the public health service was adopted by the council in July, but later in the year the decision was reversed and the hospitals remain in the charge of the public assistance committee. For several years a scheme for the utilisation of Elmet Hall for non-pulmonary tuberculosis and other orthopædic work has been under consideration. No progress was made in 1930 in this matter. Another attempt to amalgamate the public health and school medical service came to nothing. The Housing Act of 1930 offered an opportunity of attacking the slum problem, which is, says Dr. Jervis, of considerable magnitude and complexity in Leeds. Dr. Jervis had hoped for a big effort and was disappointed with the meagreness of the five-year programme. This programme, as revised, provides for the erection of 5000 municipal houses, 3000 of which are for new housing, 1820 to replace houses in clearance areas, and 180 to replace individual houses demolished. At the end of the year the houses numbered 128.432, of which 74,805 are back-to-back and 53,627 are through houses. Dr. Jervis divides the former into those built: (1) before 1872, numbering 33,632; (2) from 1872–90, numbering 28,154; (3) from 1890 to 1909, when the Housing Act forbade the building of back-to-back houses, numbering 13,019. He thinks 14,000 to 16,000 of the first group need immediate treatment by demolition or otherwise, and that the remainder should receive attention within ten years. Group 2 are far from ideal and should be improved if possible. Group 3 are satisfactory. Amongst the 53,627 through houses there are some which are just as bad as the worst type of back-to-back and which have been occupied since Leeds was a moderate-sized village. There is considerable overcrowding and an increasing portion of the population is removing into houses *let in lodgings. There is no power to* require registration of these houses before they are split up, and Dr. Jervis says there must be hundreds of houses let in lodgings in the city unknown to his department.

The city analyst, Mr. C. H. Manley, like his colleague in Portsmouth, objects to the standards for first quality jams suggested by the manufacturers and public analysts.

SCHOOL MEDICAL SERVICE.

Town or borough.	No. on roll.	Average attendance.	Routine inspection.	Special examinations and reinspections	Percentage of defects.
Cambridge..	6,805	6,170	1,970	2,441	6·3
Swindon ..	9,413	8,302	3,126	9,351	24·1

Cambridge.

The proportion of children in the town found to require treatment is even lower than last year and is less than one-third the figure for the whole country. The contrast is attributed by Dr. A. Mabel Gurney, assistant medical officer, mainly to differences in procedure. Enlarged tonsils for example, she says, are *not* at once notified to parents as in need of treatment, as is done in many areas; for it has

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CORRESPONDENCE

A CHRISTMAS APPEAL.

To the Editor of THE LANCET.

SIR,—For many years I have asked members of he medical profession to subscribe at this time of he year in order that the Royal Medical Benevolent fund may distribute Christmas gifts. These gifts re made to poor widows and daughters of our rofessional colleagues and also to medical men who re infirm or unable to work through illness, and whose avings are exhausted.

I know the times are difficult for everyone, but I eel confident that those who can spare even a small lonation will do so again this year so that even geater hardship should not fall on those least able o bear it. It has been the hope of the committee o distribute 30s. to each of the annuitants and the oorest of the grantees at Christmas. I am most nxious that none should look in vain this Christmas or the gift which can bring a few additional necessities f life and extra comfort to their homes. It is lifficult for us to realise that these "homes" are ften only a bed-sitting room of a very cheap rental.

May I ask your readers to forward their donations owever small they may be? Cheques, postal orders, r even stamps should be addressed to the Ion. Treasurer, Royal Medical Benevolent Fund, l, Chandos-street, Cavendish-square, London, W. 1.

I am, Sir, yours faithfully,

THOMAS BARLOW,
President, Royal Medical Benevolent Fund.

Oct. 21st; 1931.

SHOULD HIGH BLOOD PRESSURE BE REDUCED?

To the Editor of THE LANCET.

SIR,—Prof. Rudolf suggests that the accumulation f undesirable material in cases of hypertony after eduction of arterial pressure is due to the impairnent of the kidney from damage by sulphur. The ollowing facts prove this contention to be untenable.

1. Broadly the same results were obtained after the dministration of erythrol tetranitrate (half a grain every hree hours), a drug which cannot possibly impair the idney.

2. Cases of hypertension in which the arterial pressure ecame low solely *as a result of heart failure show abnormal* ncrease in blood-urea, &c., an increase which disappears vhen the arterial pressure regains its usual high level.

3. In cases of heart disease with normal kidneys there s an accumulation of urea, &c., as a result of the lowering of arterial pressure brought about by heart failure. The ncrease of blood-urea in our cases was without a doubt lue solely to the lowering of the arterial pressure.

He has disregarded our findings in regard to the ardiac function which is definitely impaired as a result of the treatment. Actually our treatment has brought about a condition which is very much akin to heart and kidney failure, and it is difficult to believe that in the routine treatment of uncomplicated high blood pressure we ought to aim to impair the cardiac and renal *function.*

There remain two complications of hypertony in which a reduction of pressure may be desirable—viz., threatening heart failure and apoplexy. In regard to the former, we must ask ourselves how a case of threatening heart failure will benefit by a treatment which impairs coronary circulation, even if it lessens the resistance against which the heart is working. There does not seem to be even a clear indication for the lowering of arterial pressure in cases of threatening apoplexy, if it is true that the majority of first attacks are not due to hæmorrhage but to thrombosis. The latter is usually the result of insufficient pressure, and therefore a rise in pressure seems to be indicated in threatening apoplexy. In my experience dizziness too is due to the fact that the pressure is not sufficiently high in cerebral circulation.

We all agree that high blood pressure ought to be done away with where the causal factor can be dealt with, but to aim at reducing pressure simply as a symptomatic treatment is a different proposition altogether. After experimenting with various methods of reducing pressure I only employ now mistura alba as routine treatment in cases of uncomplicated hypertony. In suitable cases the drinking of large quantities of water proves very beneficial, and so does exercise.

The only cases rejected from our series are cases which showed a pronounced variability in pressure. I am not in a position to say whether the causal factor of our cases was nervous, toxic, or organic, for I do not believe that it is generally possible to make such distinctions by ordinary clinical methods. I am not even sure whether such clean-cut clinical types really exist. The point I should like to make, which applies to all other branches of medicine, as well as to hypertension, is that it is not safe to interfere with an adaptation unless the mechanism of this adaptation is thoroughly well known. In the absence of such thorough knowledge interference is undesirable.

I am, Sir, yours faithfully,

Liverpool, Oct. 29th, 1931. I. HARRIS.

GAS-OXYGEN ANÆSTHESIA.

To the Editor of THE LANCET.

SIR,—Dr. Macklin's interesting and able paper in your issue of Oct. 24th (p. 897) raises theoretical questions of fundamental importance, in so far as the cell-asphyxiation theory of the nature of anæsthesia is made to fit in with the practical results of gas-oxygen administration. Arguing from this theory, Dr. Macklin arrives at the conclusion that there is no theoretical objection to cyanosis during gas-oxygen anæsthesia, so long as it is due to deliberately caused anoxæmia and not to congestion. From the practical point of view, any anæsthetist accustomed to the use of gas-oxygen knows that the main objection to this carefully regulated cyanosis is the immediate and almost automatic protest of the surgeon, to whose mind any sign of *blueness is a presage of disaster,* unless at once abolished. The patient can never be shown to suffer. One may hope that Dr. Macklin's paper will make more generally understood this essential difference between deliberately caused cyanosis and that due to respiratory obstruction or failure.

So far so good. But with Dr. Macklin's advocacy of gas-oxygen alone for so wide a range of cases I cannot agree. Granted that there is no disadvantage to the patient in pushing the gas to the point of anoxæmia, the results of so doing from the point of view of the surgeon are simply not good enough, since so experienced an administrator as Dr. Macklin himself admits that he is far from being satisfied with one case in three of upper abdominal operations. The ideal anæsthetic is yet to be found, but most anæsthetists in this country would probably agree that the very much greater certainty of results obtained either by some form of premedication, or by the addition of small quantities of ether (and they are small), to the gas-oxygen greatly outweighs any minor disadvantages of doing so.

I am, Sir, yours faithfully,
London, W., Oct. 27th, 1931. DOUGLAS BELFRAGE.

To the Editor of THE LANCET.

SIR,—With regard to your comments (p. 921) on my paper, may I say that to a certain extent I heartily agree. I was however more concerned with justifying the asphyxial element than with a discussion of the practical problem of securing relaxation in operations on the upper abdomen. The latter, in my opinion, is a problem of the highest importance which might form a useful subject for discussion at combined meetings of surgeons and anæsthetists. With regard to the use of local agents, as I said in my paper, "the anoci-association methods have much to recommend them, but certainly have not found universal favour with surgeons in this country." I have for a long time insisted that to poison every cell of the body cannot be regarded as the ideal way to secure anæsthesia of a localised area, and I should like to see local anæsthetics much more freely used.

As to basal narcotics, it must be remembered that they are poisons which are effective only because they have a depressant action on cell activity, and this action is apt to be prolonged much more than is necessary or desirable. Certainly an anæsthetist must be able to give the surgeon sufficient relaxation to enable him to perform the operation with the greatest speed and the least amount of trauma, but in my judgment, having regard to the patient's ultimate welfare (the only thing that matters), he must aim to do this with the least anæsthetic effect, limiting as much as possible both depth and duration. I have the feeling that we all, particularly surgeons, are apt to concentrate too much on how to secure the maximum relaxation at the time of operation, and not enough on end-results.

Personally, in upper abdominal cases, as with all other cases, I like to see the patient come out of the anæsthetic as quickly as possible. I know then that cells and tissues are recovering their tone, and that defensive and repair processes will rapidly come into action just when the patient, shocked and cooled, most requires them to prevent respiratory complications and persisting acidosis, with those distressing symptoms, cough and vomiting.

In my series of upper abdominal cases I think I could claim that the results in one-third were excellent, in another third satisfactory; but I must admit that in the final third the relaxation secured at the time of operation was by no means perfect. There were however two factors other than the inadequacy of the agent which entered into these results: first, I was buying my experience; and, secondly, I was experimenting with apparatus. With greater experience, an effective apparatus that does not unduly distract attention from the patient, and reliable gas-cylinders (which the makers have not yet given us), I am quite sure that much more consistent results at the time of operation could be secured with gas-oxygen, especially if combined, as you suggest, with effective local injections.

Light preliminary medication is undoubtedly of value, but I do not think that profound or prolonged basal narcosis forms any part of the solution of the problem when the anæsthetic is considered from sta to finish as a general whole.

I am, Sir, yours faithfully,
Dundee, Oct. 26th, 1931. A. H. MACKLIN.

DERMATITIS FROM ORANGES AND LEMON

To the Editor of THE LANCET.

SIR,—Referring to the useful paper by Dr. Sibyl Horner, it is interesting to note that her conclusio are supported by previous experimenters. Mülle in 1926, noted that the "essential oil" in the ri of the orange alone provoked a dermatitis. T subject was discussed, in 1930, in persons handli lemons, by Shapiro.[2] This year Fanburg a Kaufman[3] satisfactorily show that the juice of t flesh is comparatively harmless; on the contrary t essential oil of lemons readily brings out eruptio *particularly in susceptible individuals. Dr. Horn* has advanced our knowledge by showing the clo relationship between the irritants of the citrus a pinus group of plants.

I am, Sir, yours faithfully,
Wigan, Nov. 2nd, 1931. R. PROSSER WHITE.

PSYCHOLOGICAL CLINICS FOR CHILDREN

To the Editor of THE LANCET.

SIR,—The annotation under the above heading your issue of Sept. 24th is an admirable and time example not merely of the interest that the medic press takes in the progress of medicine in this countr but of the watch and ward it keeps over the develo ment of new trends. All too little is known by medic men and women as a whole of the work that is bei done not only by the Child Guidance Clinic, t Jewish Health Organisation's Clinic, and the Natio Institute of Child Psychology, but also by the Insti tute of Psychological Medicine (formerly the Tavisto Clinic), and the departments established to deal w maladjusted children at Guy's Hospital, G Ormond-street Hospital, University College Hospi the Maudsley Hospital, and elsewhere, which unenumerated in your note. Until, indeed, nature and the differences of this work are fami to the medical profession, misconceptions m inevitably arise.

Of this fact there could perhaps be no bett example than your appreciative and yet chasteni note. We kiss the rod with the better grace beca the genuflexion offers us the opportunity to remo more than one misconception as to the aims a objects of the National Institute of Child Psycholog (1) No proposal has ever been made by the institu to establish any course of instruction for soci workers; (2) the institute does not intend to iss certificates of proficiency either to doctors or t social workers; (3) no claim has ever been mad by the institute—nor will it ever be—to decide wh shall and who shall not be competent to direct wor in child psychology. It is true that medicine is alread overburdened with degrees and diplomas. Far be i from us to add to their number. Some recognitio of satisfactory study is, however, the due of an serious student attending a 12 months' course o instruction; and the certificate which the institut proposes to give is designed to afford this recognitio and, at the same time, as is expressly stated in th syllabus, to form an entrance qualification.

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[1] Finger Dermatitis from Peeling Oranges, Münch. med Wochenschr., May 21st, 1926, p. 804.

[2] Vrach. Dielo, Sept. 1st, 1930, p. 1240.

[3] Jour. Amer. Med. Assoc., August 8th, 1931, p. 390.

We are interested in your limitation of the field of psychological medicine in its relation to children to behaviour disorders and juvenile delinquency. This is in line with the view of the Child Guidance Council as expressed in their official pamphlet,[1] but not of the institute. In the field covered by the work of the institute are included many forms of minor physical ailment, the psychoneuroses of childhood, and any form of difficulty experienced by children in their adjustment to life or to their own emotional states, for which adequate provision is not already successfully made by ordinary hospital treatment or social agencies.

I am, Sir, yours faithfully,
MARGARET LOWENFELD,
Hon. Medical Director, National Institute of Child Psychology.
19, Warwick-crescent, W., Nov. 3rd, 1931.

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[1] Child Guidance by Team Work. By William Moodie, M.D. M.R.C.P., D.P.M. The Child Guidance Council.

POST-WAR NEURASTHENIA AND ABREACTION.

To the Editor of THE LANCET.

SIR,—In to-day's issue of THE LANCET I followed with interest and pleasure Dr. Eric Coplan's description of the post-war neurasthenic and shell-shock cases he dealt with at the ex-Services Welfare Society; but I found it difficult to agree with his remarks on the treatment of these cases. I am tempted to ask if he has witnessed—as I have—the dramatic effect of a typical abreaction when such a psychopathic case relives the trauma which has caused these symptoms; and if he has watched the after-effects of this abreaction, when the patient regains quietness and stability, and pursues his daily business to his own and his employer's satisfaction.

I am, Sir, yours faithfully,
M. L. DOBBIE-BATEMAN.
London, S.W., Oct. 31st, 1931.

OBITUARY

ROBERT GORDON CRAIG, M.B., Ch.M. Syd., F.R.A.C.S.

Dr. Gordon Craig, news of whose death has reached this country, was a noted figure in Australian surgery, which he did much to advance.

DR. R. G. CRAIG.

Robert Gordon Craig was the eldest son of Capt. Robert Craig, and a nephew of Dr. John Macmillan Brown, Chancellor of the Senate of the University of New Zealand. Born in Ayrshire in 1870, he was taken to Australia at the age of 8 years and received his early education at Sydney Grammar School. Returning to George Watson's College, Edinburgh, in his teens, he matriculated in Edinburgh before entering Sydney University as a medical student, where he qualified in 1894, being awarded the University gold medal at graduation. In 1901 he was elected to the honorary staff of the Royal Prince Alfred Hospital in Sydney, on which he served for nearly 30 years. During the war he was colonel in charge of the first Australian hospital ship *Karoola*, which was organised and fitted in England under his supervision. He took part in the operations around Gallipoli, and made numerous trips between Egypt and Australia. After the war his interest began to focus specially on genito-urinary surgery, and it was due to his efforts that a department of urogenital surgery was established at the Prince Alfred Hospital. In 1926, on his own suggestion, he relinquished the post of honorary surgeon for that of honorary urological surgeon, in order to take charge of the department which he had created and to which he contributed in all about £20,000, together with his own fully equipped private laboratory. He also made substantial gifts for research work and for a post-graduate fellowship course in urology.

Gordon Craig's name will, however, chiefly be associated with the Royal Australasian College of Surgeons, of which he was a foundation fellow, and in the creation of which he took a very active part. In 1917 he was president of the British Medical Association in New South Wales, and in 1924 he was elected a fellow of the American College of Surgeons. A great traveller, he used to make periodic trips to England, America, and the Continent, mainly for the purpose of study whilst abroad, and to keep himself in touch with the latest developments in surgery. A versatile man, with a wide general knowledge of medicine, he had an unusual gift for friendship, while his enthusiasm for all kinds of altruistic work was infectious. Much of his leisure time he gave to golf, and for many years he was a prominent yachtsman, owning and racing successfully many different crafts as a member of the R.S.Y.S.

Dr. Craig is survived by his widow, who before her marriage was Miss Connon of New Zealand, and by two daughters.

SHOLTO DOUGLAS, M.D. Oxf., M.Sc. Birm.,

PROFESSOR OF PATHOLOGY, UNIVERSITY OF SHEFFIELD.

THE news of the sudden death at Llandudno, on Oct. 30th, of Prof. Sholto Douglas came as a painful shock to his colleagues in Sheffield. Although he had been laid up for some weeks, the latest news was that he was progressing favourably, and it was expected that he would soon be back at work.

James Sholto Cameron Douglas was born at Leicester in 1879, being elder son of Mr. Claude Douglas, F.R.C.S., consulting surgeon to the Leicester Infirmary, and brother of Dr. C. G. Douglas, F.R.S., Fellow and tutor in natural science at St. John's College, Oxford. Sholto went to Wyggeston's Grammar School, and from there to Haileybury College, from which he gained an open science exhibition to Christ Church, Oxford. Graduating in 1902, he entered St. George's Hospital for his clinical study, becoming Webb scholar in bacteriology, and taking his medical degree three years later. For a while he remained at the hospital as assistant curator of the museum, and then studied abroad, mostly at Copenhagen and Dresden, with a Radcliffe travelling fellowship. In 1907 he became lecturer in pathology at the University of Birmingham, being called four years later to the same post at Manchester. It was there that he had a serious illness which left its mark on his naturally fine physique. It had hit him harder than was realised at the time, and although when appointed to the Joseph Hunter chair of pathology at Sheffield in 1915, he was able to carry out the heavy duties that this involved, especially with the 3rd Northern General Hospital during the war, and later to add to it those of Dean of the Faculty for many years, yet it was evident that he was always working to the limit of his strength, and from time to time he had to rest and take things quietly. There is no doubt that this accounts for the comparatively scanty output of original work during his latter years, not in any way commensurate with the promise of his earlier days. While he published no text-book or systematic work, Douglas contributed a number of short papers to medical and pathological journals on subjects on which he was working. His early interests included a study of cardiographic tracings from the base of the human heart, of the spread and control of diphtheria epidemics, and of the invasion of the pericardium by malignant tumours. Later he was chiefly concerned with immunological problems. In association with Prof. Dreyer he wrote on the absorption of agglutinins and other immune bodies by charcoal; with Prof. Boycott on the composition of tissue fluids and the regulation of blood volume in normal and nephritic animals.

As a teacher Sholto Douglas was thorough, concise, and clear. His department was a model of organisation, and during his occupancy of the chair of pathology the bonds between the University of Sheffield and the various hospitals of the city and district were tightened and strengthened. His opinion was widely sought and his sound judgment was justly valued. His quiet unostentatious work as Dean of the Faculty for the last ten years was done with characteristic care and thoroughness. One of his colleagues writes of his generous, unselfish, and gentle nature. Always ready and willing to help in any difficulty, he spared neither time nor trouble in so doing. He made no enemies, and his loss will be long and deeply felt by his associates.

Prof. Douglas married in 1911 Mary Victoire, daughter of Mr. Richard Brice, of Burnham, Somerset.

JAMES T. C. NASH, M.D. Edin., D.P.H.

Dr. Nash, who died in London on Oct. 17th, had retired three years ago from the county medical officership for Norfolk which he had held for 20 years. Born in January, 1865, at Ootacamund, South India, son of James Tavenor Nash, and educated privately, he took the early part of his medical course at Madras, where he was prizeman in surgery, qualifying at Edinburgh University in 1886. After taking his M.D. and the D.P.H. Camb., he became lecturer in bacteriology at King's College, London, and for a time acted there as professor of hygiene. His first public health appointment was a short one at Brighton, going on to Southend-on-Sea, where he was appointed medical officer of health, with charge of the sanatorium and small-pox hospital. His well-directed interest in the bacteriology of the shell-fish beds brought him for a time into conflict with local interests. In 1908 he became the first medical officer for Norfolk, and shortly after taking up this appointment, school medical inspection was added to his official duties. With a staff of two medical inspectors and two wholetime nurses he developed a very efficient system which included one or two characteristic features: children with ringworm were allowed to attend school provided they wore linen caps and followed certain definite instructions, and head teachers in the county had to notify infectious disease both to district medical officers and to the central office. In 1913 Nash was appointed to deliver three lectures under the Chadwick Trust, and in these he attempted to deal philosophically with the problems of epidemics in a semi-historical manner. The trend of his argument was the evolution of specific pathogenic properties in disease-causing organisms; he was unable to believe in the permanence of characters and properties in bacteria in the same way as they exist in animals and plants of more highly developed organisation, insisting that insanitary conditions may play a part in giving pathogenic properties to ordinary saprophytic organisms. In 1920 he was able to satisfy his cherished wish of having a county laboratory, bacteriology having always been to him a major interest. Unfortunately, his health, following a slight stroke in 1913, led to his retirement at the age of 63. He left the county with the goodwill of all who had worked under him, for he was a good and reasonable chief. Outside his busy professional life he was a freemason, and keen on various field sports, including golf, cricket, and tennis, in all of which he had obtained distinctions.

THE LATE DR. RUTHERFORD MACPHAIL.

Sir John Collie writes: "Others have testified to the professional abilities of Samuel Rutherford Macphail; may I add a word or two with regard to the loss his many friends have sustained? Macphail had a strong personality combined with a gentle retiring disposition; he was charitable in thought, word, and deed — I cannot remember his once saying an uncharitable word about anyone, and I knew him well for nearly half a century. Those who mourn his loss feel how true it is that 'to live in the hearts of those we leave behind is not to die.' Some natures owe their power of impressing us by one quality, some to another; Macphail owed it to the quality of love. There are more saints walk this earth than we sometimes think."

PARLIAMENT

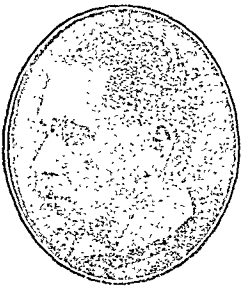
NOTES ON CURRENT TOPICS.

THE NEW PARLIAMENT.

THE newly elected House of Commons assembled on Tuesday, Nov. 3rd, for the purpose of electing the Speaker. Captain FITZROY was re-elected to that office on the motion of Sir G. COURTHOPE (Unionist), seconded by Mr. WILL THORNE (Labour). On the following day, the King's approbation of the Speaker having been intimated, the House of Commons proceeded to the ceremony of swearing in the members. After this was completed the House adjourned until Nov. 10th, when Parliament will be opened in State by His Majesty. The profession of medicine and surgery is again well represented in the new Parliament.

MEDICAL MEN IN PARLIAMENT.

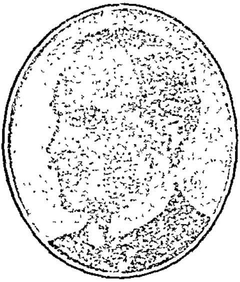
Acknowledgments of photographs are due to—*Vandyk* (Dr. Cooke); *H. V. Richards* (Dr. Hillman); *A. W. Sargent* (Dr. Howitt); *Lafayette* (Dr. O'Donovan; *Philipson & Son* (Dr. Leech); *Elliott & Fry* (Dr. Worthington).



DR. J. D. COOKE
(Hammersmith: South).

DR. W. J. O'DONOVAN
(Stepney: Mile End).

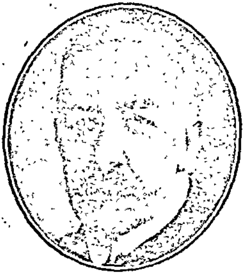
MAJ. WALTER E. ELLIOT
(Glasgow: Kelvingrove).



COL. F. E. FREMANTLE
(Hertford: St. Albans).

SIR E. G. GRAHAM-LITTLE
(London University).

MR. H. C. HASLAM
(Lincolnshire: Horncastle).



DR. G. B. HILLMAN
(Wakefield).

DR. A. B. HOWITT
(Reading).

ANALYSIS OF VOTING.

THE list of medical candidates here given shows the individual position at the poll and the number of votes registered. The sign † indicates membership of the last House of Commons, ‡ membership of a previous Parliament, and * that the candidate has contested this or some other seat before.

Constituency.	Name.	Position at poll.	Votes registered.
Universities.			
London	Sir Ernest Graham-Little†	1	(1) Ind. C., 8461 (2) Non-par., 3134 C.
Queen's, Belfast..	Prof. T. Sinclair†	U.	
London Boroughs.			
Bermondsey (West)	Dr. Alfred Salter†	1	(1) Lab., 10,030 (2) C., 9,948 (3) Com., 873
Camberwell (Dulwich)	Dr. C. R. Cooke-Taylor*	3	(1) C., 21,752 (2) Lab., 4,747 (3) L., 3,924
Hammersmith (South)	Dr. J. D. Cooke*	1	(1) C., 21,018 (2) Lab., 8,390
Paddington (North)	Miss Esther Rickards	2	(1) C., 23,901 (2) Lab., 9,597
Stepney (Mile End)	Dr. W. J. O'Donovan	1	(1) C., 12,399 (2) Lab., 9,738
Wandsworth (Central)	Sir Henry Jackson‡	1	(1) C., 19,159 (2) Lab., 7,512 (3) N.P., 421

(*Continued at foot of next page.*)

DR. JOSEPH HUNTER
(Dumfriesshire).

SIR HENRY JACKSON
(Wandsworth: Central).

MEDICAL MEN IN PARLIAMENT.

Acknowledgments of photographs are due to—

Bassano (Maj. Elliot); *Los Angeles Studios* (Dr. Hunter); *Alfred Haley* (Dr. Morris-Jones); *Allison* (Prof. Sinclair).

DR. J. W. LEECH
(Newcastle-on-Tyne: West).

DR. J. H. MORRIS-JONES
(Denbigh: Denbigh).

DR. ALFRED SALTER
(Bermondsey: West).

PROF. THOS. SINCLAIR
(Queen's University, Belfast).

DR. J. H. WILLIAMS
(Carmarthen: Llanelly).

DR. J. V. WORTHINGTON
(Gloucester: Forest of Dean).

ANALYSIS OF VOTING (*continued*)—*See also foot of opposite page.*

Constituency.	Name.	Position at poll.	Votes registered.	Constituency.	Name.	Position at poll.	Votes registered.
English Boroughs.				Glasgow (Kelvingrove)	Dr. Walter E. Elliot†	1	(1) C., 21,481 (2) Lab., 12,415
Ilford	Dr. Russell Thomas	3	(1) C., 43,737 (2) Lab., 12,173 (3) L., 9,179	*English Counties.*			
Newcastle-on-Tyne (West)	Dr. J. W. Leech*	1	(1) C., 28,560 (2) Lab., 13,514	Bucks (Wycombe)	Dr. L. Haden Guest‡	2	(1) C., 41,265 (2) Lab., 10,821
Reading ..	Mr. Somerville Hastings† Dr. A. B. Howitt*	2 1	(1) C., 34,439 (2) Lab., 19,277 (3) N.P., 861	Gloucester (Forest of Dean)	Dr. J. V. Worthington	1	(1) Nat. Lab., 11,815 (2) Lab., 13,291
Wakefield ..	Dr. G. B. Hillman*	1	(1) C., 15,881 (2) Lab., 11,774	Hants (Winchester)	Dr. R. A. Lyster*	2	(1) C., 31,531 (2) Lab., 13,529
Scottish Burghs.				Herts (St. Albans)	Dr. F. E. Fremantle†	1	(1) C., 36,690 (2) Lab., 10,289
Edinburgh (East)	Dr. Drummond Shiels†	2	(1) L., 17,372 (2) Lab., 10,244 (3) Ind., 2,872	Lincoln (Horncastle)	Mr. H. C. Haslam†	1	(1) C., 18,103 (2) L., 8,135
				Somerset (Taunton)	Dr. F. G. Bushnell*	2	(1) C., 22,561 (2) Lab., 8,367

MEDICAL NEWS

Royal College of Physicians of London.

At a meeting of the College on Oct. 29th, with Lord awson, the President, in the chair, the following candi- ates, having satisfied the Censors' Board, were elected to e membership :—

Frederick Gerard Allison, M.D., Manitoba; James Hilton entley, L.R.C.P.; Trevor Laurence Bomford, M.B. Lond; upert Pritchard Picton Davies, M.D. Lond.; Laurence Bedford well, M.B., Sydney; Maurice Rolfe Vickers Ford, L.R.C.P.; iver John Franklen-Evans, M.B. Camb.; Frank Alfred Gaydon, I.B. Lond.; Isaac Gordon, M.B. Lond.; Ram Kumar Goyal, I.D., Punjab; Richard Fairfax Tukino Grace, M.D. Edin.; Iohan Lal Gujral, M.B., Punjab; Arthur Sandford Hosenson, I.B. Lond.; Esther Margaret Killick, M.B. Leeds; Frank atrick Lee Lander, M.B. Lond.; Mahomedali Ladhabboy listry, M.D. Lond.; Francis Alan Richards, M.B. Camb.; lahmoud Salah-eldin, M.B., Cairo; Henry Armand Hugh elbourne, M.B. Lond.; Samuel Shone, M.B. Lond.; Felix mith, M.D. Birm.; Raghubansa Kishore Tandon, M.B., ucknow; Shripad Shivarao Ugrankar, M.B., Bombay; and hushwant Lal Wig, M.B., Punjab.

Licences to practise were conferred upon 120 candidates 109 men and 11 women) who have passed the final examina- ion of the Conjoint Board and have complied with the y-laws of the College. The following are the names and edical schools of the successful candidates :—

A. Rasheed, Punjab and London; S. S. Alam, M.B. Punjab, niv. Coll.; G. T. Allen, St. Thomas's; M. W. Allen, Middle- x; A. B. Anderson, Camb. and Univ. Coll.; A. A. Anderson, I.D., Western Univ., London; A. Ascher, Long Island and King's Coll.; T. J. Ashley, Cardiff and St. Mary's; Kathleen V. Aylwin-Gibson, Liverpool and Westminster; R. Baker, Leeds; E. T. Bannister, Univ. Coll.; P. S. Bassalvi, M.B. unjab, Middlesex; E. H. S. Bebb, London; C. M. Bell, t. Bart.'s; E. A. R. Berkley, Guy's; J. B. Bishop, Oxford nd St. Thomas's; M. Bloom, Manchester; H. E. Bonnell, ing's Coll.; J. R. Braybrooks, Oxford and King's Coll.; . J. Burke, Liverpool; T. E. Burrows, Camb. and St. Bart.'s; R. W. Cowen, Camb. and Univ. Coll.; R. A. F. Creet, St. homas's; C. J. N. Davis, Bristol; N. E. D. De Silva, Univ. oll.; A. H. Dunkerley, Camb. and Manchester; B. Dunkerley, lanchester; Joanna M. Egerton, King's Coll.; A. G. Evans, irmingham; M. Farooq, M.B. Bombay, St. Bart.'s; J. W. H. oy, Liverpool; S. Gay French, King's Coll.; J. H. L. Gilmore, amb. and St. Thomas's; G. P. Gladstone, London; F. R. lover, London; P. W. Godfrey, Leeds; A. J. B. Goldsmith, iddlesex; G. H. Greenway, Guy's; H. N. Gregg, M.P. Birm.; N. Hall, Manchester; G. W. Hall-Smith, Camb. and Guy's; R. A. E. Hammond, Camb. and Guy's; Margaret Hardwick, Leeds; Sheila M. Harper, Liverpool; Florence D. Hawes, Royal Free; F. Hilmy, Durham; L. A. Hiscock, St. Bart.'s; Nora A. Hodgkinson, Leeds; P. A. Hubbard, Univ. Coll.; Daisy G. Iliff, B.A. Lond., King's Coll.; J. A. James, Cardiff and Charing Cross; W. H. G. Jessop, Camb. and Univ. Coll.; D. E. V. Jones, King's Coll.; E. Kaminsky, Univ. Coll.; . A. Kidvai, Bombay and King's Coll.; Victoria H. King, oyal Free; A. W. Langford, Camb. and St. Bart.'s; H. H. angston, St. Bart.'s; N. R. C. Lansdell, King's Coll.; B. awn, Camb. and St. Thomas's; J. Littlejohn, St. George's; . D. Low, St. Mary's; J. M. Low, St. Mary's; R. S. C. McDade, amb. and St. Thomas's; J. G. Madden, Middlesex; G. S. alik, Univ. Coll.; M. H. Masina, Camb. and St. Bart.'s; osa Matthew, Punjab and Royal Free; M. T. Maung, M.B. angoon, Guy's; C. F. Mayo-Smith, St. George's; S. G. eanley, Leeds; T. F. Miles, St. Thomas's; A. Miller, Wit- atersrand and Guy's; I. D. Monger, Cardiff and Charing ross; M. Myers, Durham and Univ. Coll.; P. H. Nankivell, iddlesex; M. W. C. Oldfield, B.M. Oxf., Leeds; W. H. Owles, xford and Guy's; G. T. Partridge, Camb. and St. Bart.'s; . C. T. Pearson, Camb. and St. Thomas's; T. J. Phillips, Univ. Coll.; P. Pringle, King's Coll.; Dorothy M. M. Rees, Charing Cross; L. Rees, Cardiff and St. Thomas's; G. O. S. Reid, St. Mary's; W. F. Richards, Camb. and St. Bart.'s; B. Roberts, Univ. Coll.; I. C. Robertson, Camb. and St. Thomas's; P. Rosenfeld, St. Bart.'s; M. G. Ross, M.B., Leeds; J. T. Rowe, St. Bart.'s; C. Rutter, Guy's; C. R. Sadler, Camb. and St. Thomas's; I. N. Samuel, Middlesex; Mary A. Saunders, King's Coll.; G. Scott, Camb. and Middlesex; A. Shafi, M.B. Punjab, Charing Cross; H. Shoukry, Birmingham; A. Shufleder, Leeds; H. Simpson, Manchester; K. Singh, Bombay and St. Thomas's; R. E. G. Smith, Birmingham and Charing Cross; P. Q. M. Spaight, St. Bart.'s; G. Steane, M.B., Birm.; D. Stone, Cardiff and Guy's; G. L. Stroud, Oxford and St. Mary's; I. Sutton, M.B., Manchester; J. T. C. Taylor, St. Bart.'s; G. W. Thomas, Camb. and St. Bart.'s; H. C. Wadge, Oxford and St. George's; W. W. Walther, Univ. Coll.; R. A. Wesson, Univ. Coll.; H. G. Williams, St. Thomas's; R. N. H. Williams and T. P. Williams, Camb. and St. Bart.'s; D. S. P. Wilson, M.B., Dub.; A. L. Wingfield, St. Thomas's; J. M. Wingfield, Birmingham and St. Mary's; C. E. R. Wood, Camb. and Guy's; and R. B. D. Wright, St. Mary's.

A supplementary list of licentiates is being issued later for candidates whose examinations were not complete when the above list was compiled.

Diplomas in Public Heath were conferred (jointly with the Royal College of Surgeons) upon the following 19 candidates :—

M. Akram, E. A. Aslett, R. S. Baindur, Eleanor M. Carless, R. Cove-Smith, J. Cribbin, J. H. Dancy, E. C. Downer, E. Grundy, P. L. Khosla, J. R. Macdougall, C. V. Macnamara, R. D. Munshi, J. L. Newman, Ajit K. Sen, Amiya K. Sen, H. B. Swift, I. Taylor, and S. R. Wilson.

Prof. H. R. Dean, Dr. Gordon Holmes, and Dr. J. P. Hedley were elected Councillors. Dr. K. D. Wilkinson was appointed an examiner in pharmacology and Prof. R. T. Leiper an examiner in tropical medicine and hygiene. Dr. Raymond Crawfurd was re-elected a representative of the College on the committee of management of the Conjoint Board, and Dr. Comyns Berkeley the College representative on the Central Midwives Board. The President announced that the Council had appointed Dr. Robert Cruickshank, of the University of Glasgow, to be Milroy lecturer for 1933, and that Prof. Edward Mellanby had accepted the office of Croonian lecturer for 1933. The appointments of Mr. D. H. Patey as Streatfeild scholar and Mr. F. E. Pitt-Payne as Jenks memorial scholar were also announced.

University of London.

University College.—A course of 12 lectures, with practical exercises, on the administration of psychological tests in mental clinics and hospitals, will be given by Mr. W. Stephenson, Ph.D., Miss Constance A. Simmins, and Miss L. Grace Studman, beginning on Tuesday, Nov. 17th, at 3 P.M. The day and hour for the continuation of the course will then be arranged to suit the convenience of those wishing to attend.

On Oct. 21st the degree of *Ph.D.* in Hygiene was conferred on Dr. Stephen Leonard Baker.

Society of Apothecaries of London.

At recent examinations the following candidates were successful :—

Surgery.—H. W. Davies, St. Mary's Hosp.; G. Handelsman, London Hosp.; M. Iddali, Univ. of Manch.; R. Perkins, St. Bart.'s Hosp.; Z. M. Pierpont, Westminster Hosp.; and S. Ramarao, London Hosp.

Medicine.—S. J. Bellgard, St. Mary's Hosp.; L. F. Donnan, Queen's Univ., Belfast; C. Morgan, Charing Cross Hosp.; Z. M. Pierpont, Westminster Hosp.; and B. Rivlin, Middlesex Hosp.

Forensic Medicine.—V. R. T. Baylis, Royal Free Hosp.; M. Ditton, Univ. of Heidelberg and Royal Free Hosp.; L. F. Donnan, Queen's Univ., Belfast; K. Malik, London Hosp.; H. C. Pain, St. Andrew's Univ. and Middlesex Hosp.; and Z. M. Pierpont, Westminster Hosp.

Midwifery.—V. R. T. Baylis, Royal Free Hosp.; K. W. Bruce, Univ. of Durham; G. A. Dingemans, Guy's Hosp.; L. F. Donnan, Queen's Univ., Belfast; H. T. Giblin, St. Mary's Hosp.; H. G. Hind, St. Bart.'s Hosp.; J. L. King, Charing Cross Hosp.; F. C. Moll, Westminster Hosp.; T. D. Norton, Univ. of Sheffield; E. M. F. O'Donovan, Royal Free Hosp.; H. Owen, Univ. of Oxford and St. Mary's Hosp.; Z. M. Pierpont, Westminster Hosp.; F. A. Trowbridge, St. Mary's Hosp.; H. A. T. Wells, Guy's Hosp.; and J. C. Williams, St. Mary's Hosp.

The following candidates, having completed the Final Examination, are granted the diploma of the Society entitling them to practise medicine, surgery, and midwifery: H. W. Davies, L. F. Donnan, H. G. Hind, and Z. M. Pierpont.

West London Medico-Chirurgical Society.

A combined clinical and pathological meeting of this Society will be held at 8 P.M. to-day, Friday, Nov. 6th, at the West London Hospital.

(*Continued from previous page.*)

Constituency.	Name.	Position at poll.	Votes registered.
ilts (Swindon)..	Rt. Hon. C. Addison†	2	(1) C., 22,756 (2) Lab., 17,962
Welsh Counties.			
armarthen (Llanelly)	Dr. J. H. Williams†	1	(1) Lab., 34,196 (2) C., 18,163
enbigh (Denbigh)	Dr. J. H. Morris-Jones†	U.	Nat. L.
Scottish Counties.			
umfries-shire ..	Dr. J. Hunter†	1	(1) L., 26,873 (2) Lab., 7,693
enfrew (West) ..	Dr. R. Forgan†	4	(1) C., 17,318 (2) Lab., 10,203 (3) Ind., 3,517 (4) N.P., 1,304

C.=Conservative. L.=Liberal. Nat. L.=National Liberal. ab.=Labour. Nat. Lab.=National Labour. Ind.=Inde- endent. N.P.=New Party. U.=Unopposed.

Royal College of Surgeons of Edinburgh.

Out of 36 candidates entered the following have passed the Final Dental Examination, and have been granted the diploma of L.D.S., R.C.S. Edin. :—

M. J. McGibbon, George Borland, A. E. Daviot, Christine E. Rose, Alastair Macdonald, Andrew Muir, W. J. Wolton, S. L. Drummond-Jackson, R. G. C. van Someren, F. G. Forbes, R. C. G. Zuill, A. B. Morrison, F. A. Edgar, Philip Levine, Abdullah Ismail, A. J. C. McIntosh, and R. C. Elliott.

Queen's University, Belfast.

The chair of pathology, rendered vacant by the departure of Prof. Murray Drennan to Edinburgh, has been filled by the election of Dr. J. S. Young, reader in experimental pathology and assistant director of cancer research in the University of Leeds.

THE honorary freedom of the borough of Holborn has been conferred on Sir William Smith, Principal of the Royal Institute of Public Health, in recognition of his distinguished services to the borough during the past 50 years, and of his eminent services to the public health.

West Riding Association of Edinburgh Graduates.

This association is holding its annual general meeting and dinner at the Midland Hotel, Bradford, on Wednesday, Nov. 11th. The meeting is at 6.45 P.M., and the dinner at 7.30. Prof. D. P. D. Wilkie is to be the guest of the evening. The hon. secretary is Mr. Donald Watson, 33, Manor-row, Bradford.

Occupations of Ophthalmic Patients.

Of the 3848 new patients attending at the Dundee Eye Institution last year, 1094 were school-children, 905 mill-workers, 236 labourers, 142 domestic servants; 85 were children under 12 months.

London Light and Electrical Clinic.

Twelve post-graduate lectures on Physiotherapy will be given at this clinic at 42, Ranelagh-road, S.W., at 8.30 P.M., on Wednesdays from Nov. 11th. The lecturers will be Sir Leonard Hill, F.R.S. (medical superintendent), Dr. H. J. Taylor, Dr. Albert Eidinow, Dr. C. A. Robinson, Dr. H. V. Morlock, Dr. Philip Ellman, and Dr. C. B. Levick. Particulars may be had from the Secretary.

Instruction for D.P.M.

We have received a syllabus of lectures and practical courses to be given from January to May, 1932, at the Maudsley Hospital, Denmark-hill, London, S.E., primarily to candidates for diplomas in psychological medicine. The lecturers and demonstrators are Dr. F. Golla, Capt. S. A. Mann, Prof. W. le Gros Clark, Mr. Charles Geary, Dr. Henry Devine, Dr. Edward Mapother, Sir Hubert Bond, Dr. A. J. Lewis, Mr. R. Foster Moore, Dr. Bernard Hart, Dr. T. Tennent, Dr. F. C. Shrubsall, and Dr. W. Norwood East. Particulars may be had from the director of the Central Pathological Laboratory, at the hospital.

British College of Obstetricians and Gynæcologists.

At the special meeting of the Council on Oct. 23rd, described in our last issue (p. 967), in addition to the conferment of honorary Fellowships, the following were admitted to the ordinary Fellowship of the College :—

Margaret Basden, Frank Cook, Joseph Bernard Dawson, Samuel Walter Maslen Jones, Gordon King, Arthur James McNair, and Ruth Nicholson.

The following were admitted to the Membership :—

Michael Waldo Boone Bulman, Reginald Lionel Downer, Amy Margaret Fleming, Joan Kennedy Rose, Margaret Salmond, and Gerald Spence Smyth.

At a quarterly meeting of the Council on Oct. 24th, it was decided that those who were invited to become Foundation Fellows and Members from Great Britain and the Irish Free State be allowed to accept this invitation up to the time of the annual general meeting in 1932.

Epsom College.

The Council of Epsom College will shortly award two France pensions of £30 a year to medical men. Candidates must be not less than 55 years of age, and their income, independent of any allowance from the College or from the Royal Medical Benevolent Fund, must not exceed £100 a year. The Council will also award one Grewcock pension of £70 a year. In this case there is no limitation as to age, but candidates must be legally qualified medical men who have retired from professional work, and who, in the opinion of the Council, are in need of the pension. There is the same income limit as in the case of France pensioners, and special consideration will be given to the claims of candidates having association with Worcestershire, Lincolnshire, or Carmarthenshire. Forms of application should be obtained forthwith from the secretary, Major W. L. Giffard, 49, Bedford-square, W.C. 1.

Medical Diary

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY, Nov. 9th.—5 P.M., UNITED SERVICES. Wing Commander H. A. Treadgold: History Taking as a Factor in the Estimation of Physical Efficiency.

TUESDAY.—5 P.M., THERAPEUTICS. Prof. E. C. Dodds: Some Aspects of Ketosis. 8.30 P.M., PSYCHIATRY. Dr. Bernard Hart: Psychology and Psychiatry. (Presidential address.)

WEDNESDAY.—5 P.M., SURGERY: SUB-SECTION OF PROCTOLOGY. Mr. W. S. Perrin: Some Landmarks in the History of Rectal Surgery. (Presidential address) HISTORY OF MEDICINE. Members of this Section are specially invited to attend.

FRIDAY.—5.30 P.M., CLINICAL. (Cases at 4.30 P.M.) Mr. Cecil P. G. Wakeley: 1. Plasma Cell Myeloma of the Spine. 2. Malignant Palatine Tumour. Mr. Eric A. Crook: 3. Tumour of Testis. Dr. Terence East: 4. Tumour of Lung and Dextrocardia. 5. Hemi-hypertrophy and Telangiectasia. Dr. A. E. Schwartzman: 6. Vasomotor Disturbance. 8.30 P.M. OPHTHALMOLOGY. (Cases at 8 P.M.) Mr. Rugg-Gunn: Some Points in the Fitting of Contact Glasses. Cases will be shown.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY, Nov. 9th.—8 P.M., Clinical Evening.

PADDINGTON MEDICAL SOCIETY.

TUESDAY, Nov. 10th.—9 P.M. (at the National Institute of Child Psychology, 19, Warwick-crescent, W.). Dr. Leonard Findlay and Dr. Margaret Lowenfeld: Work of the Institute.

BIOCHEMICAL SOCIETY.

FRIDAY, Nov. 13th.—3 P.M. (at the Imperial College of Science and Technology, South Kensington). Communications: T. Moore: High Potency Vitamin A Concentrates. S. H. Piper: X Ray Analysis of Certain Long Chain Paraffins, Ketones, and Alcohols. A. C. Chibnall: The Metabolism of Plant Waxes. G. H. Bell and A. R. Craig Paterson (introduced by A. Hunter): A Chart for pH Calculations. J. A. B. Smith: The Glyceride Fatty Acids of Certain Forage Grasses. C. R. Harington and S. S. Randall: Synthesis and Properties of *i*-β Hydroxyglutamic Acid. W. L. Davies: The Inactivation of Lipase in Dairy Products by Traces of Heavy Metal Salts. J. Pryde and R. T. Williams: The Structure of Borneol Glucuronic Acid Synthesised *in vivo*. T. S. G. Jones and E. T. Waters: A Note on the Sugar of the Nucleic Acid of *Bacillus tuberculosis*. H. J. Phelps: The Influence of Hydrogen-ion Concentration on the Response of Tissues to Histamine. P. V. McKie: The Nitrogen Metabolism of the Lupin Seedling. A. C. Chibnall and R. G. Westall: The Estimation of Glutamine in the Presence of Asparagine. J. M. Gulland and W. H. Newton: Observations on the Purification of the Oxytocic Principle of the Posterior Lobe of the Pituitary Gland. Demonstrations: *S. H. Piper* and A. C. Chibnall: Apparatus for Distillation in High Vacua of Substances with a High Melting Point.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.

TUESDAY, Nov. 10th.—5 P.M., Dr. James Collier: Development of Neurology from the *Nineteenth Century*. (Last FitzPatrick Lecture.)

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

MONDAY, Nov. 9th.—5 P.M., Mr. R. Davies-Colley: The Border-line Tumours of Bone.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Nov. 9th to SATURDAY, Nov. 14th.—ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, Broad-street, W.C. Special Post-graduate Course in Ophthalmology. Clinical instruction every afternoon 2.30–4.30 P.M. Special demonstrations on Mon., Wed., and Thurs. at 5 P.M.—ROYAL WATERLOO HOSPITAL, Waterloo-road, S.E. All-day post-graduate course in medicine, surgery, and gynæcology. Demonstrations and lectures.—MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W. Free lecture on Wed. at 4 P.M. by Lord Moynihan on Gastric and Duodenal Ulcer.—In connexion with the M.R.C.P. Course of lectures: on Mon. Nov. 9th and Wed. 8.30 P.M. Dr. Maurice Cassidy on Prognosis in Heart Disease.—ROYAL CHEST HOSPITAL, City-road, E.C. Free post-graduate demonstration by Dr. H. B. Day on Wed. 2.30 P.M.—ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, 234, Great Portland-street, free post-graduate demonstration by Mr. R. Y. Paton in the *Out-patient* Department on Thurs. at 3 P.M.—Further particulars from the Fellowship of Medicine.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL, University-street, W.C.

TUESDAY, Nov. 10th.—5.15 P.M., Miss Harriette Chick, D.Sc.: Vitamins and Disease.

ATIONAL HOSPITAL, Queen-square, W.C.

MONDAY, Nov. 9th.—2 P.M., Dr. Riddoch: Out-patient Clinic. 3.30 P.M., Mr. Leslie Paton: Papillœdema (2).

TUESDAY.—2 P.M., Dr. Walshe: Out-patient Clinic. 3.30 P.M., Mr. Armour: The Surgery of the Posterior Fossa (2).

WEDNESDAY.—2 P.M., Dr. Martin: Out-patient Clinic.

THURSDAY.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Dr. Carmichael: Some Problems of Sensation (2).

FRIDAY.—2 P.M., Dr. Adie: Out-patient Clinic. 3.30 P.M., Dr. Bernard Hart: Some Disorders of Memory (2).

VEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

MONDAY, Nov. 9th.—10 A.M., Gynæcological Wards; Genito-urinary Operations; Skin Department. 11 A.M., Surgical Wards. 2 P.M., Surgical Wards; Medical, Surgical, Eye, and Gynæcological Out-patients.

TUESDAY.—9.30 A.M., *Operations.* 10 A.M., Medical Ward Demonstration; Dental Department. 11 A.M., Throat Operations. 11.30 A.M., Surgical Demonstration. 2 P.M., Operations; Medical, Surgical, and Throat Out-patients.

WEDNESDAY.—10 A.M., Medical Wards; Children's Medical Out-patients. 2 P.M., Medical, Surgical, and Eye Out-patients. 2.30 P.M., Gynæcological Operations. 4.45 P.M., Venereal Diseases Demonstration.

THURSDAY.—10 A.M., Neurological Department. 11.30 A.M., Fracture Demonstration. 2 P.M., Medical, Surgical, Eye, and Genito-urinary Out-patients. 2.30 P.M., Operations.

FRIDAY.—10 A.M., Medical Wards, Skin Department, Dental Department. 2 P.M., Medical, Surgical, and Throat Out-patients. 2.30 P.M., Operations.

SATURDAY.—9 A.M., Throat Operations. 10 A.M., Medical Wards, Surgical Out-patients; Children's Medical Out-patients.

ING'S COLLEGE HOSPITAL MEDICAL SCHOOL Denmark-hill, S.E.

THURSDAY, Nov. 12th.—9 P.M., Dr. T. East: Recent Views on Cardiology.

ING'S COLLEGE, Strand, W.C.

THURSDAY, Nov. 12th.—5 P.M., Mr. W. Robson: Protein Metabolism. (First of four lectures.)

OYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.

WEDNESDAY, Nov. 11th.—4 P.M., Prof. Winifred Cullis: Health of the Woman Citizen.

THURSDAY.—4 P.M., Prof. Leunbach (Copenhagen): Græfenberg "Silver Ring" and inter- and intra-uterine pessaries. (With Illustrations.)

ENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY, Nov. 13th.—4 P.M., Mr. F. W. Watkyn-Thomas: Lateral Sinus Thrombosis.

T. MARK'S HOSPITAL, City-road, E.C.

THURSDAY, Nov. 12th.—4.30 P.M., Dr. J. B. Alexander: Mucous Colitis.

AMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.

WEDNESDAY, Nov. 11th.—4 P.M., Dr. C. O. Hawthorne: Ophthalmology and General Medicine.

T. PAUL'S HOSPITAL, Endell-street, W.C.

WEDNESDAY, Nov. 11th.—4.30 P.M., Dr. N. Mutch: Diuretics.

OUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James' Hospital, Ousely-road, Balham, S.W.

WEDNESDAY, Nov. 11th.—4 P.M., Dr. J. P. Martin: Examination of the Nervous System.

ONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY, Nov. 10th and following THURSDAY.—5 P.M., Dr. A. Whitfield: Tuberculosis Cutis. (1).

HADWICK PUBLIC LECTURES.

FRIDAY, Nov. 13th.—7.30 P.M. (at Gateshead Town Hall), Sir Robert Philip: The Outlook on Tuberculosis—Then and Now.

MANCHESTER VICTORIA MEMORIAL JEWISH HOSPITAL, Elizabeth-street.

WEDNESDAY, Nov. 11th.—4.30 P.M., Dr. C. Jacobs: Glaucoma.

MANCHESTER HOSPITAL FOR CONSUMPTION, Hardman-street, Deansgate.

WEDNESDAY, Nov. 11th.—4.30 P.M., Dr. Vernon Smith: Hypertropic and Atropic Rhinitis.

ANCOATS HOSPITAL, Manchester.

THURSDAY, Nov. 12th.—11 A.M., Dr. G. J. Langley: Clinical Demonstration. 4.15 P.M., Mr. J. Morley: Cancer of the Stomach. (By Invitation.)

MANCHESTER ROYAL INFIRMARY.

FRIDAY, Nov. 13th.—4.15 P.M., Mr. C. Roberts: Demonstration of Surgical Cases.

ST. MARY'S HOSPITAL, Whitworth-street, Manchester.

TUESDAY, Nov. 10th.—4.15 P.M., Prof. W. Blair Bell: Present and Future of the Science and Art of Obstetrics and Gynæcology. (Lloyd Roberts lecture.)

UNIVERSITY OF SHEFFIELD.

FRIDAY, Nov. 13th.—3.30 P.M. (At the Royal Infirmary.) Mr. R. St. L. Brockman: Acute Intestinal Obstruction.

ROYAL HOSPITAL FOR SICK CHILDREN, Glasgow.

WEDNESDAY, Nov. 11th.—4.15 P.M., Prof. G. B. Fleming: Medical Cases.

THE FACULTY HALL, St. Vincent-street, Glasgow.

TUESDAY, Nov. 10th.—4 P.M., Dr. J. Cowan: Valvular Disease of the Heart.

Vacancies

For further information refer to the Advertisement columns.

Aberdeen Royal Mental Hospital.—Jun. Asst. P. £300.

All Saints' Hospital (for Genito-Urinary Diseases), 91, Finchley-road, N.W.—Hon. Surgical Registrar.

Bedford County Hospital.—1st H.S. At rate of £165.

Birmingham General Hospital.—Res. Surg. O. £180.

Birmingham Mental Hospital.—Jun. Asst. M.O. £350.

Birmingham, Queen's Hospital.—Visiting Anæsthetist. 100 gns. Also Pathologist. £100.

Bodmin, Cornwall Mental Hospital.—Second Asst. M.O. £350.

Brighton, Royal Alexandra Hospital for Sick Children.—H.P. £100.

Brookfield Orthopædic Hospital, Hale End, Woodford Green.—Anæsthetist.

Burnley, Victoria Hospital.—H.P. At rate of £150.

Burton-on-Trent General Infirmary.—Sen. H.S. £200.

Cambridge, Addenbrooke's Hospital.—Res. Anæsthetist and Emergency O. £130.

Cardiff City Mental Hospital, Whitchurch.—Deputy Med. Supt. £700.

Cardiff Royal Infirmary.—H.S. to Ophthalmic Department. Also Aural H.S. and Cas. Surg. O. All at rate of £75.

Cardiff, University College of South Wales and Monmouthshire. Lecturer and Demonstrator in Anatomy. £500.

Cardiff, Welsh National School of Medicine.—Secretary. £400.

Chester, County Mental Hospital.—Jun. Asst. M.O. £350.

Colchester, Essex County Hospital.—Asst. H.S. £120.

Dewsbury County Borough.—M.O.H. and School M.O. £900.

Evelina Hospital for Children, Southwark, S.E.—H.S. At rate of £120.

Hellingley East Sussex County Mental Hospital.—Jun. Asst. Res. M.O. £350.

Hôpital Français, 172, Shaftesbury-avenue, W.C.—Jun. Res. M.O. £100.

Hospital for Sick Children, Great Ormond-street, W.C.—H.P. and H.S. Each at rate of £100.

Hospital for Women, Soho square, W.—Pathologist and Registrar. £100.

Huddersfield County Borough.—Asst. School M.O. £500.

Ilford Borough.—Asst. M.O.H. £400.

Khartoum, Wellcome Tropical Research Laboratories.—Bacteriologist. £E 660.

Kingston-upon-Hull Corporation.—Sen. Asst. M.O.H. £800.

Kingston-upon-Hull.—Res. M.O. for City Hospital, Cottingham. £350.

Lancaster, County Mental Hospital.—Asst. M.O. £500.

Lancaster Royal Infirmary.—Jun. H.S. £130.

Leicester, Leicestershire and Rutland Mental Hospital, Narborough. Asst. M.O. £350.

Liverpool and District Hospital for Diseases of the Heart.—H.P. At rate of £100.

L.C.C. Mental Hospital Service.—Asst. M.O. £175.

London Jewish Hospital, Stepney Green, E.—Res. M.O. and Cas. O. Each at rate of £150. Also Jun. Res. M.O. At rate of £100.

Lucknow University.—Professor of Anatomy. Rs.1450 per mensem.

Maidstone, Kent County Ophthalmic and Aural Hospital.—Ophth. H.S. At rate of £200.

Manchester Babies' Hospital, Burnage-lane, Levenshulme.—Sen. Res. M.O. At rate of £125.

Manchester, St. Mary's Hospital.—Jun. Asst. M.O. for Children's Out-patient Dept. At rate of £50.

Margate and District General Hospital.—Res. M.O. £150.

Maudsley Hospital, Denmark-hill, S.E.—First Asst. M.O. £750.

Middlesex County Council.—Asst. M.O. £600.

Miller General Hospital, Greenwich-road, S.E.—Out-patient Officer. At rate of £150.

Mount Vernon Hospital Northwood, Middlesex.—Res. M.O. £250.

New Zealand, University of Otago and Dunedin Hospital.—Sen. Res. Surg. and Medical Officers. Each £500.

Parbold, Lancs, Wrightington Hospital.—Asst. Med. Supt. £450.

Plymouth, South Devon and East Cornwall Hospital.—Radium Officer. £600. Also Res. Surg. O. and H.P. At rate of £150 and £120 respectively. Also Res. Anæsthetist and H.S. Each at rate of £100.

Preston, Biddulph Grange Orthopædic Hospital.—Sen. and Jun. H.S. At rate of £250 and £150 respectively.

Queen's Hospital for Children, Hackney-road, E.—Surgeon to Ear, Nose and Throat Dept.

Reading, Royal Berkshire Hospital.—Res. M.O. for Blagrave Branch. At rate of £150.

Rotherham Hospital.—Sen. H.S. £200.

Royal Northern Hospital, Holloway, N.—H.S. At rate of £70.

Ryde, Royal Isle of Wight County Hospital.—Res. H.S. £180.

St. Helens Hospital, Lancs.—H.S. £200.

St. John's Hospital for Diseases of the Skin, 49, Leicester-square, W.C.—Hon. Jun. Med. Reg.

St. Mary's Hospital, W.—Hon. Orthopædic Surgeon.

St. Thomas's Hospital Medical School, S.E.—Professor for the University Chair of Medicine. £2000. Also Pathologist to Medical and Surgical Units. £400.

St. Thomas's Hospital, S.E.—Two Surg. Regs.

Sheffield Royal Hospital.—Two Asst. Cas. O's. Each at rate of £80.

Taunton and Somerset Hospital.—Asst. H.P. At rate of £100.

Truro, Royal Cornwall Infirmary.—H.S. £170.

West Riding of Yorkshire C.C.—Three Consultant Tub. O.'s. Each £750.

Willesden General Hospital, N.W.—Cas. O. and H.P. At rate of £120 and £100 respectively.

Woking and District Victoria Hospital.—Res. M.O. At rate of £100.

NOTES, COMMENTS, AND ABSTRACTS

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(1) That all Colonial Governments should be pressed to make inquiries as to where the custom existed, in what form, and for what purpose.

(2) To consider how they could give legal protection to any girl who desired to be exempt from it.

(3) To consider what facilities could be given to girls who had reached puberty to make a statutory declaration if they wished to avoid circumcision.

(4) To take every opportunity to draw the attention of native persons and interests to the harmful effects of this practice on the race.

The origin of this movement is well within the memory of those who have followed the recent history of Kenya. It is based upon the unfortunate results which attended the action of certain missions in attempting to control, by means of prohibition, the practice of female circumcision among their adherents; the result being that it was found impossible to find husbands for uncircumcised girls.

This problem is a very old one. It arose in connexion with the Roman Catholic Mission to Abyssinia in the sixteenth century. H. Ploss[1] tells us that the missionaries deeming female circumcision to be a pagan rite forbade it among their converts. The result was that no Abyssinian would marry them. In this dilemma the matter was referred to Rome, and the College of the Propaganda sent out a surgeon to investigate and report. He formally declared the operation to be surgically necessary. The missionaries therefore permitted the continuance of the rite. In justice to the surgeon it must be noted that a congenital hypertrophy of the pudenda is common in Abyssinian women.

The recent trouble in the Colony of Kenya could have been avoided by attention to information which is readily accessible, and a more complete study disposes of most of the suggestions of the conference.

The Operation.

Judging from the speeches which have been reported from time to time there appears to be an impression that the operation of female circumcision is limited to a few African tribes. This is far from the truth, for we have reliable information that the practice is very widely spread. So widely spread, in fact, that it seems impossible that it could have arisen from a single centre. The following list, which is admittedly far from complete, shows the geographical distribution:—

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Asia.—Arabs, ancient and modern; Kamkatchkans; Malays of East Indian Archipelago, Alfurese Archipelago (most islands).

America.—Totonacs (Eastern Mexico); Chuncho, Pano, Tunka, and all tribes on the Ucayele (Peru), Tecuna (Western Brazil).

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This list shows that while Africa shows the widest distribution, no continent is or has been exempt. The absence of the practice in the huge populations of India, China, and Japan has doubtless a religious basis.

Varieties of the operation.—(1) A simple gash is made in the pudenda with a flint knife in Eastern Mexico. (2) Clitoridectomy is performed in most of the African tribes. A stone or razor is used. (3) Clitoridectomy, together with the removal of parts of the labia minora, is performed by certain African tribes (*vide infra*). (4) Introcision or cutting open the vagina is performed in Australia in those tribes in which *ariltha* or splitting the urethra in males is practised. In its more developed phase ariltha produces an artificial hypospadias. The deformity of the organ is so great that a barbarous operation on women, involving a tear of the perineum, is performed to permit coitus.

As so much attention has been focused upon ritual female circumcision in Kenya Colony, it may be of interest to note certain variations in the different tribes there:—

(*a*) A slight operation unlikely to produce after-effects obtains among the Digo, Teita, Bantu Kavirondo, Giriama, Watende, Wakamba, Kisii, Kitosh, Arabs, Swahili.

(*b*) A more severe operation with a proportion probably of after-effects is practised by the Masai, Nandi, Kamasia, Suk, Elgeyo, Njemps, Samburu, Dorobo, Lumbwa.

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The ablated parts are usually buried but are sometimes hidden in trees.

Circumcision is not practised among the Nilotic Kavirondo, Turkana, and in two small tribes (Rendile and Moram), unless perhaps where Islamised.

Infibulation is performed most frequently in the races in the north-east of Africa—viz., Gallas, Somali, Massua, Sudanese of Kordofan, and Sennaar. In Asia it is practised by the Mohammedan Malays and was in use among the ancient Arabs. It consists in the uniting of the labia by suture after circumcision. A small aperture is left for urination and menstruation. At marriage the orifice is forcibly reopened, and additional laceration is necessary at parturition. Infibulation is sometimes repeated when the husband goes on a journey, a practice reminiscent of the mediaeval knight who was said to take with him the key of his wife's "girdle of chastity."

The word "infibulation" is derived from the name given to the Roman practice of fastening a fibula or clasp through the prepuce in front of the glans to prevent sexual congress.

The age at which circumcision is performed varies very much, and a valuable list will be found in the Encyclopædia of Religions and Ethics (vol. iii., p. 668). The variation is seen in the following examples. Abyssinians, about the eighth day; in Upper Egypt, Somali, from three to four years; in Australia, generally from nine or ten years; Among the chief Kenya tribes, puberty, 14 to 15. In Loango the operation is performed eight days before marriage.

Where it is practised the rite applies to all the women of the tribe. There is no evidence anywhere of its being reserved, like the operation on the male in certain peoples, to rulers, priests, &c. Among many tribes the operation is performed en masse, and its importance is testified by feasts, dances, &c.

The operator.—In some races the operator is a male: the priest, the fetish doctor or the barber, and sometimes a relative. Most frequently, however, the office is delegated to a woman, and the wife of a priest or of a blacksmith may be chosen. (In some tribes the smith is supposed to be invested with peculiar powers, and he operates on the boys, his wife being appointed to the girls.) Among the Masai, Wakamba, and Akikuyu old women are the operators. The same practice obtains among the Malays and Peruvians.

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[1] Das Kind, vol. i., p. 380.

Origin and Meaning.

It is remarkable that with such a widespread operation as circumcision no people seems to have any legend or theory as to its origin. This applies both to the rite in the male and in the female. All that can be learned is that it is an ancestral custom. Many theories have been put forward, and some deserve discussion.

I think we may dismiss Herbert Spencer's suggestion that ritual circumcision was a mark of subjection. In old Egypt it appears to have been a mark of distinction, and was reserved for rulers and priests. It has been surmised that the operation was introduced as a sanitary measure, but its great antiquity and its practice in some of the races mentioned seems to negative this view. Moreover, this reason would not apply in the case of the female. There seems to be no doubt that the rite was first performed on the male. There is considerable evidence in favour of a religious significance, and that a *sacrifice* was made of part of the body for the salvation of the whole. Some references in Holy Writ indicate that it was "an outward and visible sign of an inward and spiritual grace"—(e.g., "circumcision of the heart." Deuteronomy xxx., v. 30; Romans ii., v. 29, &c.). Some authorities look upon the operation as a sacrifice to the deity presiding over fertility, but it is questionable if it was introduced to increase sexual gratification.

There is no doubt that in both sexes circumcision was and is looked upon as an *initiation* into the tribe. As a rule an uncircumcised girl cannot enter society. Mohammedans who observe the rite do not permit women to enter the mosque until after its performance. In ancient Egypt girls could not marry or inherit property before submitting to the operation. As already indicated, its non-performance is still held by certain tribes to render a woman unfit for marriage. It is said to be a dire insult to apply the term "uncircumcised" to an Abyssinian woman, and in Old Calabar it is ground for divorce. Fortitude during the ceremony is greatly esteemed by the relatives and others present, but it seems hardly likely that such an ordeal was devised as a test of endurance as some have suggested.

One other aspect demands a few words. It has been supposed that the origin of the operation was to check sexual desire before marriage. We know very little of the sexual life of many tribes, but there is reason to believe that it plays an important part. W. J. Jago[2] was of opinion that the public circumcision of boys at puberty had a profound psychological effect, the sexual trauma causing "introversion." By this he accounted for the change from a bright childhood to dullness and apathy after puberty common in some African tribes. We have no knowledge of a similar effect on women. Some tribes allege that ritual circumcision was introduced to avert a sort of mania from which the women had previously suffered. It is interesting in this connexion to recall that about 50 years ago clitoridectomy was performed by a London surgeon for hysteria and erotomania. The operation aroused much opposition, and was condemned by the profession generally as unscientific.

Lastly, there is no doubt that the clitoris and labia minora are hypertrophied in certain peoples. Such hypertrophy may be congenital, as in some of the races in North-east Africa, or acquired by excessive onanism as in some Malays. Prof. Ivar Broman, of Lund University, informed me that certain native women in South Africa produce a remarkable enlargement of the lesser labia by manipulation.

Medical and Legal Aspects.

At first sight there does not appear to be any more reason for deploring and discouraging the rite of circumcision in the female than in the male. Taken as sacrifices or as initiations, they are no one's business but the subject's. But one cannot be blind to the fact that just as the operation in the male has been attended by dangers and even death, the rite as performed under certain circumstances on girls is fraught with grave risks.

Among the Kikuyu, Meru, Embu, and Chuka tribes the operator is an old woman, and unclean instruments are often used. Not only is the clitoris removed but there is a severe ablation of the labia, and often partial intrecision. As a result sepsis is far from uncommon, and grave scarring may occur. In some instances a mass of tough cicatricial tissue has been found under the pubic arch, and this constitutes a serious danger. Among the conditions which have come to the notice of the profession may be mentioned dyspareunia and retention of urine, with the formation of calculi. In the museum of the pathological department in Nairobi there are specimens of *vaginal* calculus which were removed from septic pockets resulting from circumcision. With pregnancy the dangers are enhanced, and the native midwife (who is quite untrained) performs episiotomy with a razor to permit the birth of the child. Cases of dystocia of this type come under care in the maternity and mission hospitals, and there can be no doubt that there are fatalities both in the mothers and infants from this cause. It must, however, be acknowledged that a large number of women even in the reserves mentioned are delivered without grave risk.

We have official information that the law as it exists at present in the Colony of Kenya affords ample protection to any woman who does not desire to be circumcised. But it is obviously unlikely that any girl, at the age at which puberty occurs in the tropics, would seek to avail herself of the law's protection, except at the instance of some outside organisation such as a mission. In many tribes the female children are kept almost in seclusion in or about the hut. They are an asset worth so many cattle or goats, and great care is taken of them. In these, as in all primitive peoples, it is considered a disgrace for a woman not to marry. But the law cannot compel a man to marry an uncircumcised woman.

The Future.

Coercive measures dealing with age-long customs and beliefs are not only futile but may be dangerous. An elevation of public opinion must precede any radical change in the customs of these races. No one doubts that the limitation of the operation to a simple clitoridectomy would be of enormous benefit. Indeed, there is considerable evidence that the natives themselves are beginning to realise the harmful effects of mutilating operations. It is most unfortunate that the development of this more enlightened attitude should have received a serious set-back by the action of certain missions.

As a rule, British administrations have followed a policy of non-interference in matters of this type, and the wisdom of the College of the Propaganda may be commended to benevolent enthusiasts who would endeavour to force the hands of the Executive.

In this, as in many matters of policy in Kenya, much is expected from the development of the native district councils. In the very short time that they have been in existence these bodies have shown their appreciation of the efforts of the medical officers in the reserves to improve the general health. In time we may look forward to the coöperation of maternity nurses with the doctors among these tribes, and in this way the risks may be better understood. At the moment we may hope that the guidance of experienced administrators may be able to influence

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[1] Kenya and East African Med. Jour., April, 1928.

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ADDRESSES AND ORIGINAL ARTICLES

RADIOTHERAPY IN CANCER OF THE UPPER AIR PASSAGES.*

BY W. DOUGLAS HARMER, M.CHIR. CAMB., F.R.C.S. ENG.,
CONSULTING SURGEON TO THE THROAT DEPARTMENT, ST. BARTHOLOMEW'S HOSPITAL.

WHEN I received the invitation from the University of London to review the position of radiotherapy in the treatment of cancers of the upper air passages, I decided to circularise a letter to all our leading laryngologists and to many prominent clinics abroad. From 210 people that I approached in Great Britain there were 70 replies, and the great majority made it quite clear that radiation treatment had been of little value to them; many of them said quite frankly that "it did no good," that "the profession had gone radium mad," or that "radium killed more people than it relieved." There is no doubt that in this country the pioneers of radiotherapy have met with great opposition and very little encouragement, and yet more and more workers are becoming interested in the subject. It is hoped therefore that before long every hospital will realise that it is impossible to give radiation treatment properly unless all patients suitable for it are handed over to a group of specialists.

The importance of early diagnosis and early treatment cannot be overstated, and practitioners must be educated to send their patients to such centres as soon as there is any suspicion of malignancy. Under no circumstances must a cancer case be placed on a waiting-list. Unfortunately a large percentage of cancer cases of the upper air passages are often treated by repeated minor operations or inadequate radiations before they are sent to a specialist and by then the chance of cure has been lost. Biopsies, though uncertain, are in most cases essential both to confirm the diagnosis and to determine the type of growth; and as many of these growths are very virulent it is safer to remove a fragment with endothermy or only after a preliminary radiation treatment has been given. In doubtful cases it is better to rely upon clinical appearances rather than upon the histological report.

General Remarks on Irradiation.

Mrs. Quimby and her co-workers have shown that nearly all cancers in the upper air passages are radio-sensitive to some extent, but that, owing to their depth from the surface, it is difficult to deliver an adequate tissue dose. They have therefore divided the treatment into two parts, distance radiation (X rays or radium) followed by interstitial radiation. The whole dose is given in a relatively short period—namely, 20 days. Finzi's technique of X ray treatment to the larynx and hypopharynx consists in the use of six ports of entry at an angle of 60° to one another; the ports of entry overlap and treatment is given each day; the total dose is split, so that two, three, or four rounds are given. The treatment is applied on five or six days in each week, and is continued even when the mucous membrane and skin get very sore. If radium is used in combination with X rays, the dose of each is reduced.

Radium (surface or interstitial) in contra-distinction to X rays must be considered as a short range gun. Clinically and experimentally it has been noted that the best results are obtained when radium is applied in close apposition to the lesion. Should the "radium-lesion" distance be increased even by a short amount the dose required to produce a similar effect may be 40 times as large.

The total dose and the factors of time and filtration are of great importance. The amount of radium used is determined by the volume and extent of the lesion. The whole diseased area must be uniformly irradiated. Personally, I think that this can be done more certainly with needles than with seeds. If possible the needles should be distributed around the tumour rather than into it. The use of small doses over long periods has certainly given better results than large doses for a short time. Another important factor is the split dose. Spear (unpublished) has shown recently that the effect of radiation can be enhanced four to five-fold by giving a series of exposures at short time intervals (approximately one and a half hours).

Filtration is a difficult subject. I believe that the physicists are to blame for advising us to use thin filters such as 0·5 mm. of platinum. Except in very experienced hands, it is safer to employ filtration of 0·6 or 0·8 or even 1 mm. of platinum. With such filtration radium causes very little damage to the surrounding tissues and needles can safely be placed close to or into bones without fear of necrosis. Cade inserted 36 needles with 0·8 mm. of platinum filtration, carrying 78 mg. of radium into a large growth around the lower jaw, for 216 hours, without any severe reaction and obtained a remarkable palliative result. In the same way necrosis of the cartilage can be avoided.

EFFECTS OF IRRADIATION.

Patients who have suffered from syphilis, who are chronic alcoholics, who have lived in the tropics or who are seriously debilitated or anæmic rarely respond well to radiation treatment. Mottram has shown experimentally that if animals are made anæmic by bleeding they receive no benefit at all from rays. Equally important is the ray sensitivity of different grades of cancers and the condition of the stroma. Although there is no experimental evidence of the stimulating effect of radiation on the growth of tumours, this may occur clinically if too small a dose is given. The occurrence of rapid dissemination after irradiation is attributed at times to the radiation, but it is more likely that the trauma or the surgery of interstitial irradiation is responsible for this than the rays themselves.

Should rays be repeated? All seem to agree that they should not. Regaud says "C'est funeste." And yet everyone has to do it. There is no doubt that the previous treatments often make cancer radio-resistant, but the time elapsed since the first treatment, the nature of the recurrence and the extent thereof, must be taken into consideration before repeating the ray treatment. Above all, steps should be taken to verify the diagnosis, so that a delayed radium burn should not be mistakenly irradiated under the impression that it is a recurrence. No patient who has received ray treatment elsewhere should be given either X rays or radium until all details of the previous treatment have been obtained, otherwise the result may be disastrous.

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* Abstract of the Semon Lecture (University of London) entitled "The Relative Value of Radiotherapy in the Treatment of Cancer of the Upper Air Passages," delivered at the Royal Society of Medicine on Nov. 5th, 1931. For publication later.

POST-IRRADIATION CHANGES.

The following changes are seen after ray treatment:

1. *Total disappearance of the growth.*—When this occurs, the tissues regain a normal appearance. Forssell is of the opinion that the permanency of healing is *as great after* irradiation as after excision.

2. *Fibrosis or partial healing.*—This occurs often in a patient with septic infection, from under-dosage or insufficient screenage. When possible, the scar should be excised by diathermy, as these remnants always contain *islands* of cancer cells surrounded by scar tissue.

3. *Œdema.*—It is not understood why in certain individuals irradiation is followed by œdema; it may be due to a specific type of infection. It is always of serious significance.

4. *Ray sores.*—Ray burns must be distinguished *from* the normal *reactions.* The latter are painless and heal rapidly. Burns may result from over-dosage or deficient filtration; they *are very* painful, form tenacious sloughs, heal very slowly, and are the cause of great distress. In *rare instances* a callous sore may *develop and* remain unhealed for many years. If possible, radium burns should be excised by diathermy.

5. *Necrosis.*—This complication, particularly in the larynx, appears to be common in many clinics. *Our* experience is that *it rarely occurs if adequate filtration* is employed and if care is taken to prevent sepsis.

6. *Pain.*—The actual radiation treatment is painless. The normal reaction is more a discomfort than pain. *Besides* definite radium burns causing pain, persistent severe neuralgia occasionally supervenes and may be due to chronic sepsis, ulceration, or fibrosis, or may signifiy that the whole disease has not been *destroyed.*

7. *Mortality.*—In skilled hands the *operation* mortalities have certainly been less than with major excisional operations. The principal causes of death after irradiation are *infections* causing hæmorrhage, pneumonia, or, rarely, meningitis.

The Larynx.

OPERABLE GROUP.

Intrinsic carcinoma of the larynx is one of the best types of cancer in the whole body because it can be diagnosed early, while it is an entirely local disease. Usually the patient is sound in health, the glands in the neck are not affected, there is no blood infection, dissemination is rare, and the expectation of life is good. Given an intelligent selection of cases, the results obtained by surgery have been very good indeed, but probably if a census were taken of cases treated by all surgeons, we should be startled at the poor results, the chief reason being that there are really very few patients who can be safely treated by laryngofissure. At present there is not even any agreement as to what is the best operation, because the grade of the disease seems to be as important as the size and the situation. And yet the majority of laryngologists still prefer surgery to radiation because in most hands the latter has given such poor results, and the dangers have been considerable owing to faulty treatments.

Turning to those who have had wide experience of radiation we find that carcinoma of the ventricular band is highly radio-sensitive; of the cord, favourable for rays; and of the subglottic region, resistant. Regaud considers that less progress has been made with treatment of these cases than in other parts of the body; Escat (130 cases—mostly extrinsic) that radium as a sole agent gives truly bad results; Hinojar that rays give temporary relief but that recurrences in three years are common.

At present there is certainly no agreement as to the best method of giving rays. Thus we find X rays alone favoured by Coutard, Lacassagne, Joly, Lemaitre, Carulla, and many German workers; radium and X rays by Halberstaedter, Gunsett, and others; radium and surgery by Ledoux, Quick, Canuyt, and many more. Personally, I consider that buried radium has given such good results in my cases that I no longer consider that it is ever necessary to remove a growth by surgery. My practice is to treat all these cases first with radium. If the disease does not disappear at *once* it will usually be arrested and there need be no hurry in deciding the further line of treatment. As a rule radiation should *not* be repeated in these cases unless the patient is unfitted for laryngectomy. The amount of radium used is so small that it does not contra-indicate complete removal afterwards. Recurrences, if small, can sometimes be treated with radium a second time, but surgery should be carefully considered. Nearly all these *growths* are radio-sensitive, but with minor variations. It may be difficult to decide how to deliver the dose; *many failures* have been due to the mistake of not realising that the disease was more extensive than it appeared at the time of the treatment, so that the peripheral part of it never received adequate radiation.

In the larynx we have one of the best instances of the short range of the efficacy of gamma rays. For *inserting* the radium the modification of Ledoux's operation (fenestration) is suitable for growths absolutely *localised* to one vocal cord or band. When the growth has crossed the middle line the needles *must* be placed bilaterally. When it has extended down into the subglottic *region,* the principle of (or modification of) Hautant's operation should be employed and long needles inserted. Upward extension may necessitate removal of the cornu of the hyoid bone.

To avoid complications the greatest care must be taken:

1. As regards the anæsthetic; a local injection of novocain may be used or the patient may be put to sleep. In the latter case he should be given nembutal two hours before the operation; an injection of morphia half an hour before, if he is not drowsy; then gas and oxygen with a small amount of ether will be sufficient to keep him quiet, and with this method there is very little danger of pneumonia.

2. Sepsis *must* be avoided at all costs, by gentleness in *manipulation* of the tissue, by complete and careful hæmostasis, and by closing the skin wound completely.

3. The wound should never be damaged, care being taken not to cut through the capsule of the *perichondrium* which surrounds it.

4. To prevent œdema, perichondritis and late reactions, *full filtration* is necessary *(0·6 to 0·8 mm. of platinum).*

5. Tracheotomy should not be performed if the opposite cord is movable and the glottis is adequate; when in doubt the front of the trachea can be exposed and left ready for an opening if *necessary.*

With these precautions we have treated eight cases of this group (suitable for thyrotomy). Of these, seven are living free from disease—two for six years, one for five years, one for three years, and two for less than three years. One case had a recurrence after four years and was treated by laryngectomy by Colledge. One case living six years has now a small recurrence.

BORDERLINE GROUP.

Unfortunately, the majority of laryngeal cancers come to the specialist so late that the disease is widespread and cannot safely be treated by thyrotomy. Laryngectomy or radiation must be advised. Surgical treatment should *only* be *undertaken* by those who have frequent opportunities of performing these major operations, never as an occasional treatment.

Ray treatment combined with surgery is capable of giving good results. It can be carried *out* with safety and with good prospects of success only in those clinics which have group specialists, an adequate supply of radium, and an efficient X ray plant. Personally, I prefer interstitial radium after removal of the thyroid and *cricoid* cartilages, with pre- and post-operative radiation. Of this group of cases we have treated 20 patients, many in a poor state of health and quite unfit for severe operations. One remained free from disease for six years and then died of psittacosis; a second case is well for five years two for two years; and one for less than a year. Of the patients dead five lived less than one year, and five over two years. Most of the latter received temporary relief and were able to work, free from pain and believing that they were cured.

INOPERABLE GROUP.

When a growth has extended beyond the limits of the laryngeal cartilages or through them, so that the tissues of the neck are invaded, and particularly when there are glands on both sides of the neck, laryngectomy should never be undertaken. Many of us must have seen instances in which *the attempt* to remove an extensive growth completely by laryngectomy failed with disastrous results.

In this group I have 19 cases, of whom 15 are dead, one after four years, and three are living for less than a year. The total number collected includes 351 patients, of whom 209 are dead, 116 living, and 23 free from disease for three to five years or more.

Although the results of ray treatment in most centres have proved unsatisfactory I believe that this is due to faulty technique, inadequate dosage, and *underestimation* of the extent of the disease. In our hands the percentage of cures in operable cases appears to be at least as good as with operations. For the borderline group radium should always be tried before laryngectomy. The time has arrived when one may ask the question whether it is ever safe to perform a laryngectomy unless the patient has received preliminary ray treatment in some form. If the disease is not cured by radiation within three months, or if any induration remains in the larynx, it is safer to advise laryngectomy rather than to repeat radium treatment. Unless very intense radiation has been employed laryngectomy can safely be performed. Even in inoperable cases, some relief of symptoms and prolongation of life can be obtained by radium. If the growth has infiltrated the cartilages extensively or has perforated into the neck, interstitial radium should not be employed—better results can be obtained with less risk of sepsis by external irradiation with X rays or radium followed by intubation with radium.

The Hypopharynx.

Under this heading are included all cancers of the pyriform fossa or of the posterior pharyngeal wall and the extrinsic laryngeal growths. In a recent publication New states that only six out of 78 cases of this group were suitable for treatment, the remainder (72 cases) being inoperable, with an average estimated life of five months. In a recent lecture Trotter stated that the chances of cure may be frittered away by attempts at irradiation, but that for inoperable growths radium without opening the pharynx is advisable and that radium is promising in the doubtful cases. Occasionally pharyngo-laryngectomy gives good results; Arthur Evans has one case well after 18 years; Cade has two cases living free from disease 5½ and 4½ years after operation. He considers that pharyngo-laryngectomy is less dangerous than pharyngotomy, except in very localised lesions. At our hospital all these methods have been tried but with very little success. I consider that a combination of surgery and radiation is better treatment than simple excision.

Removal of the thyroid and cornu of the hyoid and insertion of radium needles is suitable for growths involving the epiglottis, *aryepiglottic fold*, or pyriform fossa, but *not for a growth* in the posterior part of the larynx. It is less likely to cause complications than open needling of the pharynx. In extensive lesions with large fixed glands, heroic operations rarely result in *a cure*; *palliation*—relief of symptoms and *prolongation of life*—can only be obtained by X rays or radium.

So far we have no really safe method of treating these cancers; this is shown by the figures I have collected. In 520 cases treated by various forms of irradiation 441 are dead, 59 are living, and only 21 free from disease for one to five years or more. Our own material shows 106 cases treated by rays, 95 dead (70 in less than a year), 23 after a year; only 11 are living. Further research in the radiation treatment of cancers of the hypopharynx is urgently needed.

The Nose.

Extrinsic growths starting in the skin are *either* rodent ulcers or squamous-celled carcinomas. Roy Ward (1773 skin cases) describes three clinical varieties of rodent ulcer: hypertrophic, ulcerating and cicatrising, deeply ulcerating. In all types radiation is better than excision, but in resistant growths excision by diathermy is indicated and is preferable to the knife. Surface irradiation by beta and gamma rays gives good results in early lesions, but needling is preferable for advanced cases and recurrences.

The carcinomata may commence spontaneously or develop in scar tissue or in a previously existing rodent ulcer, lupus, or even endothelioma. They have a very chronic course, penetrate deeply, extend widely and, although persisting for years, rarely affect the lymphatic glands or produce metastasis. Their behaviour is quite unlike that of carcinoma in any other part of the body. They are difficult to cure, although their progress may be kept in check for many years.

The best method of treatment is to use surface radium or a mould, giving split doses over prolonged periods of time (two to four weeks), supplemented occasionally by buried radium along the edge of the lesion. There is, however, an inveterate tendency for these cancers to recur, so that many treatments may be necessary both by radium and diathermy.

NASAL SINUSES (ANTRUM, ETC.).

In this situation there is great variation in the types of growth. Ewing has described 37 different types. The commonest type is carcinoma, the predominating form being a cylindrical carcinoma of the adenocarcinomatous type. For practical purposes all the tumours are malignant, but in their early stages may cause very little trouble, so that the true diagnosis is often overlooked. They tend to recur locally, but glandular involvement is late and metastases occur only in the last stages of the disease. I am aware that New states that cervical metastases are found in 73 per cent. of the disease, but this is certainly not my experience. I also find that the commonest form is a squamous-celled carcinoma.

Surgery alone has given very unsatisfactory results. In a series of 23 cases which I treated by some form of excision of the maxilla, there were two operation deaths; of 18 carcinomas, only two remained free from disease for more than three years, one of them (cylindrical) for 20 years. E. D. D. Davis treated 39 cases with surgery only: 13 carcinomas, three free from disease for 1 to 2½ years; four round-celled sarcomas, all recurred; two spindle-celled sarcomas, both free from disease for five and eight years; seven endotheliomas, all free from disease from three to five years. Surgery and radiation had undoubtedly improved the results.

untouched but must be examined periodically for at least 12 months to make sure there is no disease. When the growth is of a rapidly growing type or situated on the soft palate or cheek, the neck should be irradiated by X rays or surface radium. There is no evidence that block dissections improve the prognosis in these conditions.

(2) *Small, movable, unilateral glands should be removed*, preferably after preliminary irradiation. Levitt is of the opinion that the best results that he has obtained with X rays have been in those cases where the greater part of the glands had been removed.

(3) *Large, fixed, or bilateral glands are always inoperable* but can be arrested by a combination treatment. X rays alone can be used, or X rays followed by radium or radium alone. Regaud and specially Berven have had very good results with distant radium (bomb). Even if palliation only is obtained, its benefits are great; in Quick's words, "it extends far beyond the limits of surgery, the growth is checked, the source of metastatic emboli is eliminated, pain and fungations are prevented." An investigation of 40 specimens of lymphatic glands removed by Quick showed that much better response followed intense irradiation than small dosage.

The results are on the whole good. In a total of 512 patients, 240 are dead and 182 alive, 67 for three to five years. Our material includes 35 cases, of whom 21 are dead and 11 living, all but one free from disease.

Endothelioma.

These growths are not uncommon in the palate, pharyngeal wall, nasopharynx, and in the neck; very rarely they commence in the larynx, back of the tongue, face, orbit, or lacrymal glands. These tumours can never be trusted to remain quiescent, and the sooner they are removed the better the prognosis. In their early stages they have a dense fibrous capsule and are easy to enucleate; but there may be a small area of the tumour which is adherent to the surrounding tissues where the capsule is incomplete. This is the base of attachment, and should be cauterised to prevent local recurrence.

The treatment we generally adopt is (1) pre-operative X rays; (2) a week later enucleation of the growth, removing as much of it as possible; (3) insertion of radium, one single large dose, or small doses by the split method. In general it may be said that all endotheliomata are radio-sensitive in their early stages, and that some may be cured by irradiation alone. An analysis of cases collected shows that, although these tumours are very difficult to cure, *great prolongation of life can be expected* in a large percentage of cases. Thus, out of 47 patients, 23 are dead and 24 are living.

TRANSITIONAL CELL CARCINOMAS AND LYMPHO-EPITHELIOMAS.

These two types of carcinoma deserve special consideration because they are so highly malignant and have a remarkable susceptibility to radiation. They may commence in the tonsil, base of the tongue (lingual tonsil), nasopharynx, larynx, and perhaps in the œsophagus. Ewing found amongst 300 tumours of these regions that 10 per cent. were transitional types and 6·3 per cent. lympho-epitheliomas. The clinical symptoms are similar to those found with sarcoma—namely, rapid growth with formation of very large tumours, which may ulcerate deeply and cause early involvement of glands (large) and early metastases (rare with other carcinomas), causing severe neuralgic pain, dysphagia, and marked general debility. As Cutler has pointed out, more patients have sought advice regarding a mass in the neck than for intra-oral symptoms, and a thorough search may fail to reveal the primary growth.

The lympho-epitheliomas, first described by Regaud and Schminke in 1921, are rare: thus Schminke (1921), five cases; Jovin (1927), seven; Cutler (1929), four; Berven (1931), six. All authors are agreed (1) as to the extremely bad results of surgery and *the danger of dissemination* after trauma; (2) that these growths are extremely sensitive to radiation, even with relatively small doses. In many cases this causes a rapid disappearance of the swellings. Berven reports one instance in which the growth almost filled the mouth, but was reduced to a mere remnant by rays in 11 days.

X rays should always be employed first.

This treatment is favoured by Schminke: 5 cases, all primary healing; 1 developed metastases later; late results not stated. Jovin, 7 cases treated by Coutard: 1 free for four years; 1 no primary healing; distant metastases developed in most of them. Cutler: 9 cases (transitional 8, lympho-epithelioma 1), all free from disease; for 11 years, 1; nine years, 1; five years, 1; four years, 3; and three years, 3. But it is emphasised that these represent but a small percentage of the totals treated.

If X rays are not successful gold seeds are also inserted. The chief danger is early dissemination of the disease to the viscera, due to (1) failure completely to sterilise the primary lesion or glands; (2) dissemination by operative trauma; (3) the presence of metastases when treatment is instigated.

Berven—6 cases (tonsils)—has obtained primary healing in 100 per cent. with X rays and teleradium; and 75 per cent. remained free from symptoms for three years or more. His results show: living five years, 1; four years, 1; three years, 1; over two years, 2. The sixth case died free six months after treatment from pneumonia. These are very remarkable results.

Total Results.

The statistics that I have given are of great interest but are not a complete picture of the results obtained because in some instances the total cases treated by other surgeons have obviously not been stated. Surveying the total results, exclusive of the cases that have been lost, we obtain the following table:—

—	Total collected.	Living and percentage.	Our material.	Living and percentage.
Carcinomas ..	2687	791 (29)	313	60 (19)
Sarcomas ..	259	110 (42)	66	32 (50)
Endotheliomas	47	24 (51)	32	15 (47)

As far as the sarcomas and endotheliomas are concerned our results are about the same as those in other clinics. But in the carcinoma group the percentages are very different—19 as against 29 per cent. living. This is largely due to three factors: (1) that a large proportion of our cases were inoperable; (2) that we have included all cases treated; (3) that we have not been able to trace a number of the patients treated. Levitt has prepared a table to illustrate these points:—

Cases treated with X Rays, with or without Radium, by Finzi and Levitt.

Total.	Dead.	Living.	Free from disease. Years.						Living with disease. Years.				
			1.	2.	3.	4.	5.	6.	1.	2.	3.	4.	5.
			8.	9.	8.	4.	5.	1.	20.	26.	2.	1.	1.
267	173	94	35						59				

The 35 patients are known to be living but most of the 59 when last seen living with disease are now in infirmaries, are too ill to attend, or in some instances have sought relief elsewhere. As they have failed to attend for examination they have been presumed dead for statistical purposes. It is probable, however, that about 30 are still alive. The table is also of interest as showing the marked drop in the survival rate in and after the third year. A second critical period has been observed after four years. Considering the large proportion of inoperable cases that we have handed over to Levitt for treatment, I have been greatly impressed by the high percentage of good palliative results that he has obtained by X ray treatments.

Conclusions.

I believe that there is a great future for radiotherapy if the treatment is properly handled, but we must have special clinics, such as the Radium Institute and Mount Vernon Hospital, richly endowed, vigorously supported by the authorities in control of radium and staffed by groups of expert specialists. I agree with Trotter that radium has not made the surgery of cancer in the throat easier. On the contrary it has made it much more complicated. I doubt the wisdom—I certainly doubt the prudence—of any surgeon employing radium without the help of a group of experts. It is equally certain that the patient ought not to be handed over to the pure radiotherapist who has no clinical knowledge of the disease that requires treatment. The authorities who control radium should do everything in their power to prevent renting agencies from loaning radium to anyone except a recognised expert.

With careful treatment I believe that palliative relief can be afforded by ray treatments to a large percentage of the advanced cases of cancer with very little danger; that it is safer to treat the virulent types of cancer with rays than with surgery alone; and that even early cancers may confidently be treated by irradiation by experts. There is reason to believe that external irradiation will be found to be necessary in nearly all cases before local treatment with radium, but it is not clear at present whether X rays or large quantities of radium will produce the best effects.

AN ANALOGY BETWEEN EYESTRAIN AND CARDIAC PAIN.

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Pain is the predominating symptom both in eyestrain and in angina pectoris. Fortunately, however, every pain in the region of the heart is not pathognomonic of true angina pectoris. In certain circumstances pain, typical both in character and in area of distribution, may be complained of by patients in whom no evidence of cardiac disease can be detected. In the heart as in the eye, therefore, pain is symptomatic of several different conditions, each of which must be discovered and removed before relief is possible. Sometimes disordered innervation persists until the pain becomes a habit and the patient a confirmed neurasthenic. In many of these cases no structural disease can be discovered, consequently the invalidism is due entirely to the symptoms. It is well known that a tendency to certain ailments "goes in families," and as vulnerability may be local rather than general, hereditary predisposition plays an important part in determining whether, in the case under consideration, it will be the eye or the heart that is affected. In all likelihood headache will occur in the one case, and cardiac pain in the other, and in both instances the symptom will be either persistent or recurrent.

For our immediate purpose the eye may be regarded as a laboratory in which Nature is the experimenter.[1] The physiology of the ciliary muscle is so well understood that the changes taking place during the act of accommodation can be measured, and as there is a unity in all physiological processes, what can be demonstrated in the ciliary muscle may be assumed to occur in similar circumstances in involuntary muscle in whatever organ of the body it is found. That is the keynote to what follows.

In their functional activities the ciliary muscle and the cardiac muscle present a great similarity. The analogy is both interesting and suggestive. In the eye, just as in the heart, the limits of muscular capacity must be respected. Although the ciliary muscle is in action all through the waking hours, and the heart beats both day and night in an orderly sequence of contractions, yet in neither case is discomfort felt under normal conditions. We never notice things that run like clock-work. In a state of health both the eye and the heart possess a large physiological reserve of strength, which enables them not only to work without discomfort, but also to meet without strain the emergencies of daily life. If the eyes are to do their work in comfort, from one-third to one-half of the power of accommodation and nearly two-thirds of the power of convergence must be in reserve. The physiological reserve power of the heart cannot be calculated so accurately, but everyone who is observant and thoughtful can estimate for himself how much he can do before he feels that he is making an overdraft on his reserve of cardiac energy. This physiological reserve in both eye and heart becomes less as age advances.

The Nerve Supply.

The autonomic nervous system controls both eye and heart, and the nerve supply of the one bears a striking similarity to that of the other. Both are innervated by a parasympathetic nerve on the one hand, and by the sympathetic on the other. The purpose of this double nerve supply is to bring about a state of equilibrium in the action of the muscle—ciliary or cardiac.

The physiological antagonism between these two units of the autonomic nervous system can be readily studied by observing the contraction and the dilatation of the pupil under the influence of light. The oculomotor and the sympathetic control the iris and the ciliary muscle, while the vagus and the sympathetic regulate the action of the heart. The oculomotor is the parasympathetic nerve for the iris and the ciliary muscle, and the vagus is the parasympathetic nerve for the heart. Contraction of the pupil, due to stimulation of the oculomotor, is analogous, therefore, to slowing of the pulse from the inhibitory action of the vagus, while dilatation of the pupil and rapidity of the pulse are the result of over-action of the sympathetic.

The heart is a single organ, but it carries on a double circulation, and both the right and the left vagus contribute to its nervous supply. On the other hand, each eye is a separate organ anatomically, but physiologically, in the interests of binocular vision, they both work together in perfect unison. The oculomotor supplies not only the ciliary muscle, but also the adductor muscles of the eyeball of its own side, and the nervous control of the two eyes is equal and synchronous. Moreover in the emmetropic eye there is a fixed ratio between accommodation and convergence, and any disturbance in the harmony of this ratio at once gives rise to trouble. The act of accommodation determines the degree of convergence. I shall therefore confine myself in what follows to a consideration of the behaviour of the ciliary muscle.

It is true that there is in the eye nothing structurally comparable with the conducting system in the heart, but functionally the musculature of the iris, of the ciliary body, and of the heart acts by a rhythmical series of contractions and dilatations. In both eye and heart, moreover, the nervous arrangements have been so planned that, through the sympathetic-parasympathetic balance, response to the requirements of the body is rendered immediate and effective. We cannot argue a physiological problem from the standpoint of pure anatomy without danger of falling into error. The distinction between a static condition and a kinetic condition is fundamental.

The evidence of pharmacology[2] goes far to confirm the physiological antagonism of the sympathetic and parasympathetic nerves. Each of these two groups forms a homogeneous whole, and a drug which acts on sympathetic nerves rarely has any action on parasympathetic nerves, and vice versa. Moreover, a drug which acts on the sympathetic nerve to one organ usually acts in a similar fashion on sympathetic nerves in all organs, and the same holds good of the action of drugs on parasympathetic nerves. A solution of cocaine instilled into the conjunctival sac stimulates the sympathetic nerves supplying the dilator fibres of the iris, and causes dilatation of the pupil. Adrenalin is another drug which produces effects identical with sympathetic stimulation of involuntary muscle. When injected intravenously it not only dilates the pupil by stimulating the sympathetic terminals of the dilator pupillæ, but it also stimulates the whole sympathetic nervous system, and quickens the action of the heart. Atropine, on the other hand, has no action upon the sympathetic, but has a profound influence upon the parasympathetic nervous system. It paralyses the oculomotor nerve, causing dilatation of the pupil and loss of the power of accommodation, and by its action on the vagus the heart beats more and more quickly and feebly until at length it stops in diastole. In both eye and heart the drug acts by paralysing the neuromuscular termination of parasympathetic nerves, thereby lessening or abolishing their inhibitory control.

In the eye, physostigmine is the physiological antagonist to atropine. Physostigmine stimulates and increases the excitability of the oculomotor system. It acts on the eye when applied to the conjunctiva, contracting the pupil and causing spasm of the ciliary muscle, thereby fixing the accommodation at the focus for short distance. In some instances it produces such powerful tonic contraction of the iris and ciliary muscle that patients complain of severe pain in and around the eye. That obviously is a serious drawback to its use, and in practice physostigmine is almost invariably combined with its physiological antagonist, cocaine, when the overaction of physostigmine on the parasympathetic is counterbalanced by the compensatory action of cocaine on the sympathetic. This action of cocaine can be easily demonstrated in an eye of which the pupil has been dilated by atropine. It will be seen that the mydriasis is increased after instillation of cocaine. The explanation is obvious. Atropine paralyses the constrictor muscle of the iris, and cocaine stimulates the dilator. The physiological antagonism of therapeutic agents has often to be called into play in the successful treatment of disease. In many instances painful symptoms, due to a failure in the sympathetic-parasympathetic balance, can only be relieved after equilibrium has been restored. Digitalis has an action on the heart similar to that of physostigmine upon the eye. It increases the excitability of the vagus, thereby slowing the contraction of the heart. In an overdose it causes prolongation of systole with shortening of diastole until at length the heart ceases to beat and stops in systole.

The Pain of Eyestrain.

For our immediate purpose the cases of eyestrain[3] that are most suggestive are those in which the local manifestations are slight or absent, but in which any attempt to read or to sew is followed by severe headache. This is probably the most frequent symptom of eyestrain. The patients as a rule give a very graphic description of their suffering, but rarely make any complaint of defective vision. The headache may be dull and throbbing or acute and neuralgic. It is usually associated with the use of the eyes, and reaches its climax after a day's work; it may be constant or periodic, is frequently frontal just above the eyebrows, but may be occipital, or in the nape of the neck, radiating down the back and along the arm, while at other times the area of maximum severity is the vertex or the temple. The pain is often accompanied by hyperæsthesia and hyperalgesia of the scalp; patients dread brushing their hair, and women cannot bear the discomfort due to hairpins. Frequently very acute pain is caused by pressure upon the supra-orbital nerve as it emerges from its foramen in the upper margin of the orbit.

Concomitant symptoms are numerous, and include diplopia, flashing lights, partial blindness, nausea, retching, and persistent vomiting. Other patients complain of palpitation, of general nervousness, of want of the power of mental concentration, of irritability of temper, of drowsiness alternating with sleeplessness, and of numerous other functional disorders which, although reflex in origin, simulate organic disease so closely that diagnosis is often extremely difficult.

All who are living too freely upon the margin of their reserve strength are liable to suffer from these evil results of eyestrain, but the chief sufferers are young men or women of a neurotic temperament. It is easy to understand how in such patients impairment of general health, or a slight and latent error of refraction, is capable of inducing sufficient irritation to determine a nerve storm such as has been described, and how the constant repetition of these acute attacks may lead up to a condition of pronounced neurasthenia. That unfortunate result is well illustrated by a group of cases in which the patients, who are usually women, complain that every attempt to use the eyes is accompanied by unspeakable discomfort. The symptoms are so distressing that the patient shuns the light, says she is quite unable to read, and in many instances abandons the attempt to take any active part in life. She thinks and speaks of little else than her ocular troubles, and becomes completely absorbed in the observation of her symptoms. In these cases eyestrain is aggravated by a pathological attitude of mind, but it must not be concluded that the distress is imaginary. On the contrary, in the great majority of cases it is very real and very intense. The reality of the suffering makes it extremely difficult to withdraw the mind from it, but unless that can be done treatment will be of little avail. The doctor must understand the psychology of the disease. He must be able to inspire the patient with confidence, and to convince her that she will make a complete recovery.

The action of physostigmine in causing spasmodic contraction of the musculature of the eye explains how severe pain is produced in other organs in which involuntary muscle exists. The nervous mechanism for the production both of ocular pain and of cardiac pain is present in everyone, but in health no discomfort is felt. When pain is produced it is as a rule not the mechanism, but the exciting cause that is responsible, and in many instances it acts at a distance from the organ affected. The nature and the location of the exciting cause are very important factors in determining the *significance of both ocular* and cardiac pain. Neither *in the eye nor in the heart* is the severity of the pain or its area of distribution *any guide in differential diagnosis*, or in estimating the *gravity of the prognosis. Danger* cannot be measured by these signs. It depends wholly on the nature of the exciting cause, and whether that cause is situated outside or inside the eye or the heart. So far as the eye is concerned I have the impression that the *more easily* pain can be elicited by pressure over the supra-orbital nerve the more likely is the cause of the *trouble* to be found operating from a source outside the eyeball—that is to say, the patient is suffering from ocular strain rather than from intra-ocular disease.

Disturbance of Motor Power.

In every organ in which involuntary muscle is an important constituent, disturbance in motor power is the most serious thing that can happen to it. In that respect there is, as we have seen, a close analogy between the ciliary muscle and the cardiac muscle. In this connexion it is important to remember that, although an individual has no direct control over the action of either his ciliary or his cardiac muscle, yet he has complete control over conditions which lead to over-action of these muscles. It may be said, therefore, that both the ciliary muscle and the cardiac muscle can be forced by an effort of the will to continue working after nature has called out for a rest. This is a grave source of danger. In the healthy eye the ciliary muscle possesses a marvellous adaptability to meet the constant readjustments necessary to ensure clear vision at varying distances, and in the normal heart the cardiac muscle is capable of maintaining a circulation that can meet without discomfort the many strains incident to a vigorous life. Signs of distress, however, appear at once whenever the demands are so excessive that the muscle-fibres cannot work in relays[4] and all become tired out at the same time: pain and difficulty in reading or sewing in the case of the eye; pain and breathlessness on slight exertion in the case of the heart. It is characteristic of these symptoms, both in the eye and in the heart, that they are precipitated by effort and pass off with rest.

The physiology of accommodation is so well understood that the analogy is helpful to a proper understanding of the mechanism of the production of cardiac pain. It is well known, for example, that many typists, seamstresses, engravers, and all those engaged in similar occupations, are more short-sighted in the evening than they are in the morning. Their work requires them to use their eyes continuously at very short focus. So much so that many of them are apt to complain of frontal headache, and of inability to see properly in the distance when they look up from their exacting duties. The symptoms, as a rule, are most severe at the end of the day, and become worse towards the end of the week; but they are usually relieved after a night's sound sleep, and frequently disappear completely after a few days' holiday spent in the open air. In these circumstances the headache is obviously due to the close application of the eyes to the work, and the association of the acquired myopia gives a clue to a proper understanding of the mechanism of its production. The nature of the patient's employment demands a strong and long-*continued effort of accommodation*, with the result that the circular fibres of the ciliary muscle become *exhausted. In the effort to continue* the work they contract spasmodically. The *contraction is* tonic, consequently the muscle, being in a state of cramp, is unable to relax properly at the end of the day when, work being finished, the patient raises his eyes to look *round about him.*

What happens in such cases is that the influence of the oculomotor nerve is so powerful that it persists *after close work has been discontinued. Normal* balance is in consequence completely upset, and the sympathetic is unable, by stimulating the dilator fibres, to bring the circular fibres of the ciliary *muscle* to rest. If the oculomotor be paralysed by atropine, the power is transferred to the sympathetic, with the result that pain is relieved and the patient can now see in the distance, but he cannot see to *do his work.* When the effect of the atropine wears off, equilibrium will be restored, but it will not be maintained and the pain will recur after work is resumed unless a suitable lens is worn in front of the cornea to supplement the power of the ciliary muscle. The cause of the symptoms, therefore, is an upset in the sympathetic-parasympathetic balance, and equilibrium must be re-established before they can be relieved.

These symptoms of ocular strain are the result of overwork and, since in the heart the nervous mechanism for the production of pain is similar to that in the eye, cardiac pain will also arise as a result of overwork. For example, a boy exerts his strength to the utmost in his efforts to win a race, or an elderly man hurries unduly in an attempt to catch a train. As a result of the over-exertion both of them may be pulled up suddenly by the onset of acute cardiac pain, which in many instances is difficult to differentiate clinically from the pain of true angina pectoris. In both the boy and the man the heart muscle has been seriously over-taxed, but in neither case is it structurally diseased. All that is necessary in order to relieve the symptoms, therefore, is to give the heart physiological rest. As has been already said, there is a unity in all physiological and pathological processes; consequently if a definite reaction can be demonstrated in the ciliary muscle, it is reasonable to assume that it will also take place, in similar circumstances, in the heart and in other regions of the body of which involuntary muscle forms a component part. It may be objected that the fibres of the cardiac muscle are striated while those of the ciliary muscle are non-striated, but whatever difference striation may make to the functional activity of the heart muscle it does not affect its involuntary character. It should be remembered, moreover, that the ciliary muscle is striated in birds.

Clifford Allbutt[5] has drawn attention to the fact that the most frequent accompaniments of disordered innervation of the stomach are migraine and pseudo-angina pectoris. Hyperæsthesia of the stomach is the predisposing cause, and in some cases it is so sensitive that the patient can precipitate an attack of cardiac pain by taking a copious draught of cold water—an experience analogous to the acute pain in the eye and head from which some suffer when eating an ice. In ordinary circumstances, however, fatigue, anxiety, or annoyance has more to do with the onset of an attack than any indiscretion in eating or drinking. It is well known that, in some people who are highly nervous and over-strung, excitement may bring on an attack of violent sickness; and the same emotional disturbance which will produce gastric symptoms in one may cause migraine in another, while in a third it may give rise to severe cardiac pain. Severe flatulence and excessive acidity are constant symptoms. As a rule pain is alleviated as the "wind begins to move," and the attack is usually followed by the passing of a large quantity of pale urine.

Toxæmia.

In these cases the pain is due to a greatly exaggerated reflex, which may be the only abnormality present. In cases both of migraine and of cardiac pain, however, the increased sensitiveness of the nerves of the stomach may be complicated by chronic toxæmias.[6] Of the poisons which affect both the eye and the heart, tobacco is the most familiar. Some patients know, as a result of experience, that they are sure to suffer from cardiac pain during the night if they smoke a cigar after dinner. In like manner some of those who have an idiosyncrasy for tobacco are liable to suffer from a form of migraine when they are obliged to travel in a smoking compartment, or to sit in a room in which others are smoking. In the group of cases under our immediate consideration, however, the more subtle toxins, developed as a result of gastro-duodenal dyspepsia, are more likely to be responsible for the symptoms.

A toxin circulating in the blood may cause spasm of blood-vessels, and this spasmodic contraction can be demonstrated in the retinal vessels with the ophthalmoscope. The pallor of the skin of the face, so characteristic of the onset of an attack of migraine, is obviously due to vasomotor disturbance; and a localised spasm of the cerebral vessels explains the occurrence of the visual symptoms, the transient loss of memory, the temporary aphasia and the mental confusion which are occasionally met with in that disease. There is no reason to suppose that the coronary arteries are exempt from spasm. The patients are almost invariably of a highly nervous temperament, and are usually aware of a family tendency to disease of the stomach or heart. It is easy to understand how in a neurotic person any circulatory disturbance will readily cause an upset in the sympathetic-parasympathetic balance which, in the case of the oculomotor nerve, is referred to the distribution of the ophthalmic division of the trigeminus and, in the case of the vagus, to the area of distribution of the cervical and upper dorsal nerves. It has been said already that pain due to over-stimulation of the parasympathetic is relieved by atropine, but in these toxic patients the relief is only temporary. Until the source of the toxæmia has been discovered and eradicated, the pain continues to recur. The eye or the heart is "in the grip of a toxin," and the future progress of the patient depends upon the elimination of the poison. To recognise the reason is always the first step towards any real cure.

Differential Diagnosis.

In eyestrain due simply to an error of refraction, relief is obtained whenever suitable spectacles are worn, but if the patient be suffering also from any form of toxæmia, the prescription of spectacles is not by itself sufficient to effect a cure. It is very important, therefore, to be able to distinguish this group of cases. One of the most helpful diagnostic signs is the want of translucency in the ophthalmoscopic picture of the fundus oculi; but as a rule the patients' accounts of their symptoms are very suggestive. They complain that the headache is always worst in the morning on awakening from sleep, and that they suffer from glare, and occasional bright flashes when the eyes are exposed to light, especially when they try to read or sew by electric light. They may also say that when they attempt to read the eyes ache so acutely that they feel impelled to desist, but that if they make up their mind to persevere in spite of the discomfort, the pain gradually passes off, and they can continue with comparative ease. It is interesting that in the great majority of those patients, who, by persisting, are able to overcome the pain, the eyes are emmetropic. If any manifest error of refraction be present the patient is quite unable to continue reading after the eyes break down; he can do nothing until he gets proper spectacles.

Some who suffer from cardiac pain tell a similar story. They are pulled up at once if they attempt to walk in the cold or after a meal; but, if they quietly persist, the pain passes off and they are surprised how much they can do without any recurrence of discomfort. To be able to overcome the cardiac pain while continuing exercise is an important point for consideration in an individual case, because in true angina pectoris the seizures are as a rule directly dependent upon exertion, and the patient is compelled to remain quite still, afraid to move until the attack passes. A headache which is felt on awaking from sleep is much more likely to be due to a toxin circulating in the blood than to eyestrain. Similarly cardiac pain which comes on while the patient is at rest is usually at the outset secondary to a toxic or nervous cause, rather than the result of a structural defect in the heart muscle. In these cases physical examination reveals that the heart is normal in size and position, that the vessels are free from disease, and that the blood pressure is either normal or not materially increased.

In those who suffer from a toxic form of either ocular strain or cardiac distress an examination of the urine usually reveals evidence of faulty metabolism. There is disturbance in the normal ratio between specific gravity and output and, when a specimen has been allowed to stand overnight, a microscopic examination of the deposit shows urates or crystals of uric acid or of oxalate of lime. Search should also be made for a focus of septic infection in teeth, tonsils, antrum, appendix, gall-bladder, or prostate gland. Evidence of bacterial infection may be found where the urine shows no signs of disordered metabolism. In some cases the symptoms subside after the source of infection has been removed by a surgical operation. The important fact to recognise in all these cases is that neither in the eye nor in the heart is the cause of the symptoms to be found in the organ of which the patient is complaining. It proceeds from nervous and circulatory disturbance, due either to an error of metabolism or to absorption from a septic source at a distance. If the underlying cause can be discovered and removed by suitable treatment, the patient will very likely obtain permanent relief; but if the explanation of the production of the pain be misunderstood he will be kept miserable and apprehensive by the regularly recurring attacks. These patients, moreover, almost invariably consider it necessary to diet themselves, and as for them dieting consists mainly in restricting both the variety and the quantity of the food taken, their health soon suffers from want of nourishment, and the heart muscle shares in the general enfeeblement. Want of strength makes it necessary to curtail their activities and to deny themselves many pleasures, but in spite of every sacrifice they grow steadily worse. The pain becomes more frequent and more severe with the increasing debility; many of them become confirmed neurasthenics.

Prognosis.

It is a well-known medical axiom that disease has psychological as well as a pathological aspect. The vil results of a morbid psychology on the symptoms eyestrain have already been described. The atient is so obsessed by her visual discomforts that ie wears dark glasses constantly, and makes no effort use her eyes, notwithstanding the fact that they e structurally sound and that any error of refraction is been corrected. No matter how often it has been ntradicted, she constantly reminds herself of the nfavourable prognosis she got from a doctor many ars previously, and no one can persuade her to odify the restrictions placed on the use of her sight posed at that time. Mackenzie,[7] writing about rdiac pain, says: "the injudicious prognosis of a octor may have calamitous results," and adds that he should not only consider his words, but also his ethod of expression," and "should weigh carefully e effect of his prognosis upon his patient." In the anagement of the patient, therefore, good judgment the part of the physician is equal in importance to s medical skill. He should never forget to study the rsonality of the individual patient. I do not know any case in which it has been proved, but it is not probable that, as a result of an unfavourable ognosis, thoughtlessly given, what at the outset as nothing more than an abnormal reflex may rminate as a case of genuine angina pectoris owing the debilitating influences which years of bad alth, and the constant apprehension of evil to come, ve had upon the integrity of the cardiac muscle. I n well aware of the danger of hasty generalisation, it, if the analogy between the ciliary muscle and the rdiac muscle be sound, it is legitimate to conclude at a patient is not suffering from true angina ctoris if (1) he has been complaining of cardiac pain r several years, and if (2) after that interval of time e heart on careful examination shows no sign of largement.

The prognosis is very much more serious when the use of the pain in the eye or in the heart does not erate from a distance, but is located within the gan itself, for example the pathological changes in e eye incident to chronic glaucoma,[8] and atheroma the coronary artery in the heart. Both these seases are the result of degenerative changes; con-quently they are met with very seldom in the young, it occur most frequently in patients over 40 years age, and on the whole men are the chief sufferers. lthough some cases of chronic glaucoma are charac-rised by the complete absence of pain during the hole course of the disease, many present symptoms eyestrain especially in their initial stages. The atients, as a rule, are presbyopic, and consult an phthalmic surgeon on account of increasing difficulty seeing to read, and many also complain of pain in e eyeball and forehead. The symptoms, although lieved by the use of spectacles, tend after a time to ecur, and to be accompanied in many instances by ttacks of mistiness of vision. The patient complains hat at times, when he is suffering pain, everything e looks at is seen through a cloud of smoke; and hat a light seems to be surrounded by rainbow haloes. When an ophthalmologist learns of those symptoms e knows that he has to deal with a condition much ore serious than eyestrain.

In like manner some cases of atheroma of the oronary artery are unaccompanied by pain—angina ine dolore (Gairdner)—but in the majority the patient uffers from præcordial pain after moderate exertion, hile in the intervals between the attacks he feels perfectly well. During a seizure the pain may be agonising, and darts in characteristic fashion down the inner side of the left arm. The cardiologist knows, however, that the gravity of the symptom depends neither upon the pain nor upon its area of distribution, but he scents danger whenever the patient complains of breathlessness, and when he describes the pain as an overwhelming sense of impending dissolution.[9]

It is very important to assess the proper value of the symptoms both in the eye and in the heart, because if the patient be examined during an interval between attacks nothing abnormal may be detected. It is only when he is seen during a seizure that there is likely to be an increase in intra-ocular tension, and that a variation in blood pressure is likely to be found in a considerable proportion of the cases of cardiac pain. It is well known that, even in a state of health, both intra-ocular tension and blood pressure vary from time to time, but a persistent tendency towards hypertension or hypotension in either ought always to be regarded with suspicion, and as a "shadow of trouble to come." When left to themselves, both chronic glaucoma and atheroma of the coronary artery pursue a relentless course, and terminate in blindness, or in death, which frequently occurs with tragic suddenness. In the early days of both of these diseases there is usually considerable difficulty in immediate diagnosis, and especially in prognosis. These difficulties, however, ought never to be made an excuse for any delay in treatment, which should always be begun at the earliest possible moment. Clifford Allbutt used to say, "Give your prognosis in heart disease on the best suppositions: treat your patient on the worst." A similar aphorism may be applied to chronic glaucoma.

In both the eye and the heart the prognosis must be based upon an estimate of the amount of structural damage. If structure has been destroyed it cannot be renewed. The architecture of the different organs of the body makes it necessary to have many anatomical modifications, and the functional requirements of individual organs call for highly specialised biological adaptations of structure, for example transparency in the eye, and innate power of rhythmical contractility entirely independent of nerves in the heart. Nevertheless, one and the same physiological process is at work in each and all. So far as working capacity is concerned, therefore, the functioning unit is the most important part of the structure of the individual organ, and danger threatens whenever a sufficient number of these functioning units are injured or destroyed. When dealing with disease, therefore, it is necessary to try to assess the value of the hidden reserve of functioning units of the organ. In those with which we are immediately concerned, attention must be given to the layer of rods and cones of the retina in the eye, and to the muscular fibres in the heart. Damage of the eye may be detected before unequivocal signs of chronic glaucoma are present, by the discovery of a diminution of the light sense, and of characteristic defects in the field of vision. Failure in the power of the heart muscle cannot be measured and charted with the same precision, but, as Mackenzie always insisted, its response to effort in the ordinary daily life of the individual patient may be taken as a reliable guide in forming an opinion of its functional activity.

Treatment.

Treatment in every case must be determined by the following general instructions: (1) to adopt means to rectify faulty metabolism, and to eradicate every source of septic infection; and (2) to endeavour, in the eye, to stabilise intra-ocular tension at as near this rupture occurs about the tenth to fourteenth days following the first day of menstruation is now thought to be an established fact, and as no constant relationship between the onset of hæmorrhage from the ovary and the menstrual cycle was apparent in our cases, it is held that the corpus luteum is more likely to be the seat of the trouble than the Graafian follicle.

DIFFERENTIAL DIAGNOSIS.

It is extremely difficult to be able to diagnose these cases with any degree of certainty from acute appendicitis. It requires a very accurate history from the patient, close and careful observation on the part of the surgeon, and an intelligent summing up of the situation before it is possible to do so. The report on these cases shows quite clearly that in not one was the pre-operative diagnosis of ruptured ovarian cyst made, and by reviewing them we considered it might be possible to prevent this occurring in the future.

The history of previous attacks is common to both diseases, and therefore is of little value. The menstrual history, even if it is given accurately by the patient, *we found to be of no help. There does not appear* to be any distinguishable relationship between the menstrual cycle and the time at which a rupture of a cyst may occur.

With regard to the onset of the symptoms, this is usually stated to have occurred suddenly, and, as has been pointed out above, may be related to trauma. The cyst wall of the corpus luteum presumably either becomes very thin, or a hæmorrhage occurs into it, and some movement, in many cases of a slight nature, then precipitates the rupture. As has already been stated, the following symptoms have been found to be of no aid in the differential diagnosis: that is, vomiting, or condition of bowels. The absence of headache, although of no value in differentiating from appendicitis, is useful as a means of distinguishing from acute salpingitis.

In acute appendicitis it is usual for the pain to be of a dull nature and diffused over the abdomen, later settling in the right iliac fossa, whereas in this condition the abdominal pain, to commence with, is lower abdominal and more severe than in the early stages of acute appendicitis, as the pelvic peritoneum is irritated considerably by the pouring out of blood. On examination of the patient, the most striking point is the fact that the general condition is excellent, in spite of quite well-marked abdominal signs. Even after three days, these patients look remarkably well, when a patient with an inflamed appendix which was not resolving would look extremely ill. The condition of the tongue was too indefinite to be of any great assistance. The alteration of temperature and pulse-rate correspond with what is found in acute appendicitis. On examination of the abdomen, the tenderness is most marked, and almost amounts to hyperæsthesia, but rigidity is not nearly as great as one would expect in a similar case of acute appendicitis. Again, no absolutely definite tender spot is to be found, but the painful area is diffused over one lower quadrant or the whole of the lower abdomen. Rectal or vaginal examination does not cause such discomfort as would be expected with an inflamed appendix lying in the pelvic position.

In conclusion, we would stress the following points, in order to assist in making a diagnosis of ruptured ovarian blood-cyst: the sudden onset of severe lower abdominal pain in relation to slight trauma in a young woman; the good general condition of the patient, in spite of the length of history; and marked lower abdominal tenderness without marked muscular rigidity. The diagnosis of this condition being in the majority of instances uncertain, we should advise an exploratory laparotomy in all cases.

When rupture of this hæmorrhagic condition of the corpus luteum has been discovered at operation, in our opinion the treatment should be the enucleation of the hæmorrhagic area and the closure of the empty space by one or two catgut mattress sutures.

We wish to thank the surgical staff of St. Thomas's Hospital for permission to publish the cases.

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BRONCHIAL ASTHMA.

A RECORD OF TWO CASES.

BY P. J. CAMMIDGE, M.D.LOND.

THE following cases appear to be worth recording at the present time, when the biochemical changes associated with allergic diseases, and particularly bronchial asthma, are attracting so much attention, because more exhaustive analyses of the blood, urine, and fæces appear to have been carried out than in any others previously described, as far as I can discover.

CASE 1.—A man of 44, an engineer by profession, was sent to me by Dr. Brown Hearder, of Ilkley, in November, 1930. There was no family history of allergic disease, and the patient himself had been free from symptoms until 1922, when he had been three years in India; he had then begun to have attacks of bronchial asthma which had rapidly increased in frequency and severity. On his return home, in 1924, he underwent an operation on his nose, and for a short time was comparatively free from attacks; later, the symptoms returned with increased severity. The local treatment was repeated with no further benefit in 1928, and in August, 1930, he had all his teeth extracted under a general anæsthetic; ten days later he suffered from the worst attack of asthma he had ever experienced. As his condition interfered very seriously with his occupation, I was asked to investigate the case in the hope that light might be thrown on the metabolic disturbances underlying the symptoms, and that treatment could be devised for dealing with them.

CASE 2.—A woman of 43, was recommended to me by Dr. J. MacKenzie, of St. Anne's-on-Sea. She had experienced her first attack of asthma about three months before I saw her, in August, 1930, and the attacks had rapidly become more serious and frequent. Her niece, a child aged 11, was said to have suffered from asthma from birth.

Both were severe cases, and had developed the disease comparatively late in life, so that they were probably of similar type, although in the second case there was evidence of an inherited tendency which could not be discovered in the other. As the blood analyses of the man were carried out with samples collected during an attack, whereas the corresponding specimens from the woman were taken in a quiescent period, it is interesting to compare the results.

Biochemical Investigations.

BLOOD.

The findings obtained with samples of blood drawn from a vein after a ten-hours' fast are given in the following Table.

TABLE SHOWING ANALYSES OF WHOLE BLOOD.

	Case 1.	Case 2.	Normal.
	mg. per cent.		
Non-protein nitrogen ..	45·0	45·0	30–40
Urea nitrogen	20·0	20·0	15–20
Uric acid	9·0	9·0	1–3·5
Nucleotide nitrogen ..	16·0	16·0	3–5
Ammonia nitrogen ..	0·4	0·4	0·4–0·75
Amino-acid nitrogen ..	6 0	8·0	0–8
Total creatinine	6·5	6·0	3–6·5
Preformed creatinine ..	1·2	1·0	0·8–1·2
Total phenols	1·6	6·0	0–1·8
Free phenols	1·4	5·0	0–1·6
Sugar	35·0	77·0	70–100
Acetone bodies	0·2	0·08	0–0·04
Oxybutyric acid	2·0	2·0	1–2
Lactic acid	30·0	30·0	25–30
Cholesterol	190·0	180·0	170–200
Sodium	200·0	200·0	170–250
Potassium	180·0	192·0	150–200
Calcium	4·5	5·0	5·5–6·8
Magnesium	3·0	4·5	2·3–4·0
Chlorides	300·0	450·0	350–500
Total phosphorus	15·0	20·0	10–12
Inorganic phosphorus ..	5·0	5·6	4·5–5·5
Inorganic sulphur	0·7	0·8	0·5–1·0
Van den Bergh reaction ..	neg.	neg.	neg.
Hæmoglobin (Newcomer)..	95 per cent.	86 per cent.	85 per cent.

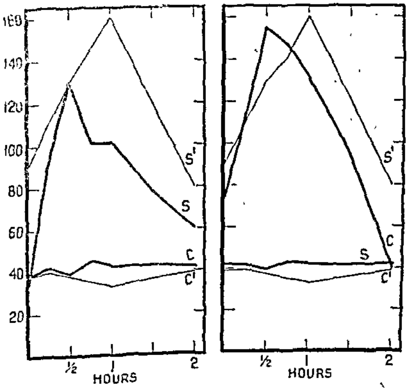
Both patients showed an identical increase in the non-protein nitrogen, uric acid, and nucleotide nitrogen, and a urea nitrogen which was up to the normal limit, but there was no excess of amino-acid nitrogen, such as has been described by Oriel,[1] in some cases of asthma, and the van den Bergh reaction was negative. An abnormal percentage of acetone was found in the blood of both patients, but it was considerably higher in the specimen taken during a paroxysm than in that obtained during a quiescent period, although both showed the same percentage of oxybutyric acid and in neither was there any excess of ammonia nitrogen. A low blood-sugar is known to be a common feature of allergic diseases, and these patients exhibited that abnormality, particularly the one on whom the estimation was made in the course of an attack. Both cases showed a low calcium and an excess of phosphorus, but whereas the blood of the man contained a subnormal percentage of chlorides, this was not the case with the woman; the latter, however, had an excess of magnesium. Billigheimer[2] has drawn attention to the occurrence of a subnormal percentage of calcium in the blood of asthma patients, but the other abnormalities have so far not been reported. It will be noticed that there was a considerable excess of phenols in the second case but not in the first. Although both specimens showed striking variations from the normal, the differences between the two were not very pronounced on the whole. Nevertheless, they were, in all probability, somewhat greater than appears for, while in the second case the hæmoglobin and erythrocyte count were approximately normal (86 per cent. Newcomer, and 4,800,000 per c.mm.), in the first they were distinctly high (95 per cent. Newcomer, and 5,600,000 per c.mm.), thus indicating a concentration of the blood in the latter which should be taken into account in making the comparison.

GLUCOSE TEST-MEAL.

Immediately after the venous blood had been obtained the patients were given 50 g. of glucose in water by the mouth; samples of blood were taken from finger-pricks for sugar determinations, and specimens of alveolar air were secured for the estimation of the carbon dioxide tension (Haldane) at intervals for two hours. The results are represented in Figs. 1 and 2. In the first case the percentage of sugar in the blood underwent an unusually rapid rise and had attained the normal level at the end of half an hour; then, instead of rising further, it dropped almost as quickly, although it had not returned to the fasting level at the end of the second hour. A similar but less pronounced rise during the first half hour occurred in the second case, and this was followed by an even more rapid fall, so that by the end of the second hour the percentage was considerably lower than it had been fasting.

The carbon dioxide tension of the alveolar air in the first case did not alter appreciably from the normal average during the first half hour, but subsequently, instead of the usual fall, it exhibited a striking rise which carried it well beyond the limit of the normal range, thus suggesting a well-marked alkalosis, which persisted to a lesser extent until the completion of the test. In the second case the carbon dioxide tension of the alveolar air was high before the glucose test-meal was taken, and showed little change, excepting for a slight fall at the half hour when the percentage of sugar in the blood was highest, so that in this instance also there was apparently a well-marked alkalosis.

FIGS. 1 2



Blood-sugar and carbon dioxide tension of alveolar air, fasting and after a test-meal of glucose (50 g.), during an attack of bronchial asthma (Fig. 1), and in a quiescent period (Fig. 2). S = Blood-sugar in mg. per cent. S' = normal blood-sugar. C = carbon dioxide tension of alveolar air in mm. C' = normal carbon dioxide tension of alveolar air.

URINE.

No sugar was found in the urine in either case during the two hours following the glucose test-meal or in a complete 24 hours' collection, but the female patient passed rather more than half a gramme of glycuronic acid, mostly within two hours of glucose being taken, and both excreted an excess of dextrine, 6·3 g. in the first case and 8·5 g. in the second, in the course of 24 hours. In spite of the abnormal acetone content of the blood in both cases, none was found in the urine, and the total acidity and ammonia nitrogen were within normal limits, but there was an excess of amino-acid nitrogen in both 24-hour collections, 0·12 g. and 0·2 g. respectively. In the first case the phosphates (6 g.), calcium (0·6 g.), and magnesium (0·45 g.)

were high, but there was no excess of chlorides (*15 g.*); while in the second case, although the calcium excretion was excessive (0·6 g.), the phosphates (3 g.), chlorides (12 g.), and magnesium (0·36 g.) were normal. Qualitative tests gave an abnormal reaction for indole, skatole, and urobilin with the urine of both patients.

FÆCES.

Macroscopic and microscopic examination of the fæces showed no striking abnormality, but chemical tests gave a well-marked reaction for biliverdin and a fair reaction for occult blood in both cases. An abnormal percentage of inorganic ash, 25 per cent. and 20 per cent. respectively, was found in the quantitative examination, also a rather low fat content (12 per cent. and 15 per cent.), with a subnormal percentage of neutral fat (0·4 and 0·3 per cent.) and a high trypsin index, 250 units in both.

Discussion.

The *outstanding features of these cases are, first,* the fasting hypoglycæmia, with a relative hyperglycæmia after 50 g. of glucose had been taken and, secondly, the high carbon dioxide tension of the alveolar air, pointing to a well-marked alkalosis. The latter is particularly interesting in view of the theory recently suggested by Beckman,[3] that there is an intimate connexion between the state of allergy and the acid-base balance of the body, the allergic individual being, according to him, "one who stores too much reserve alkali and neutralizes too rapidly or too effectively the acid substances constantly liberated into the blood stream during the course of normal metabolism." Both the cases under consideration seem to support Beckman's theory, for, although the carbon dioxide tension of the alveolar air was not abnormally high in the *fasting specimen from* the first patient, it must be remembered that he was then suffering from a severe attack of asthma which would, no doubt, temporarily increase the acid products in the blood stream; when he was examined again next day during a quiescent interval, and after a good night, the carbon dioxide stood at the same level—42 mm.—as in the patient who was not suffering from an attack at the time the original estimation was made. In both cases the ingestion of sugar was followed by a brief reduction in the alkalosis, possibly owing to stimulation of the pancreas and a consequent increase in its alkaline secretion, but when the sugar content of the blood diminished and the tissues were probably making use of the sugar as a source of energy, the carbon dioxide increased again, particularly in the first patient whose available carbohydrate was evidently low, judging from the very small *percentage found in his fasting blood.*

The difference between the fasting blood-sugar levels in the two cases is, no doubt, accounted for—to a large extent at least—by the different conditions under which the samples of blood were obtained, and that this is the case is indicated by the fact that a specimen subsequently taken from the first patient when he was not suffering from an attack was found to contain 70 mg. per cent. of sugar with a hæmoglobin content of 85 per cent. (Newcomer). Experiments I have described elsewhere [4] have shown that a naturally occurring hypoglycæmia in mice is transmitted as a Mendelian recessive character, and there is reason to think this may be true of human beings also,[5] although conclusive evidence of the transmission of a recessive character is difficult to obtain in the human subject. It is suggestive, however, that in one of these cases a blood-relation of the next generation suffered from the same disease as the patient, but at a much earlier age.

Assuming that the hypoglycæmia in the cases under consideration was a sign of an inherited defect of metabolism and that this defect was in some way connected with the allergic condition, it may be asked why the appearance of the symptoms of asthma was delayed until middle life. An explanation is suggested by the character of the blood-sugar curve and the other results of the analyses. In both cases the rapid rise in the sugar content of the blood after glucose *had been taken* by the *mouth indicates an imperfect* capacity to store sugar, but, as the excess was rapidly removed after a short latent period, it is evident that the trouble lay in a too-rapid passage of sugar from the hepatic into the systemic circulation; in other words, the relative hyperglycæmia was due to defective functioning of the liver. That the functions of the liver were not being normally carried out was also suggested by the excess of nitrogenous waste products in the blood and the amino-acid excess in the urine. Experiments upon animals and observations on *human beings have shown that hypoglycæmia* may be a consequence of hepatic insufficiency, and it is therefore not improbable that in both these cases the low blood-sugar was dependent upon liver defects, partly inherited and partly acquired as a result of damage consequent upon the continued action of some toxin. The phenol content of the blood, particularly in the second case, the marked excess of indole and skatole in the urine of both, and the presence of glycuronic acid in the urine of the woman, all point to an intestinal toxæmia, while the pronounced urobilinuria, with the high trypsin index and relatively low percentages of fat in the stools, suggest an infection of the bile and pancreatic ducts with consequent secondary changes in the liver and pancreas. Consistent with these conclusions are the very marked reaction for biliverdin and the excess of inorganic ash given by the fæces, indicating a chronic catarrh of the small and large intestine in both cases.

Treatment.

The indications for treatment suggested by these findings were, first, to improve the condition of the intestine and control the toxæmia as far as possible; secondly, to raise the sugar content of the blood and increase the functional activity of the liver; and thirdly, to prevent the development of alkalosis. A diet was *therefore* prescribed *as free* as could be managed of irritating material and containing an excess of acid-forming, relative to base-forming constituents. The patients were advised to eat as much dextrinised starch as possible and to take two or three ounces of glucose daily in divided doses, since experiments I described some years ago [6] showed that dextrins improve the functional activity of the liver better than untreated starches, and I have found that when glucose is taken by the mouth there is a pronounced diminution in the excretion of indican in the urine. As the administration of calcium along with glucose has a more beneficial effect than that of glucose alone in experimental liver poisoning, according to Minot and Cutler,[7] and as the blood analysis showed a low percentage of calcium in both cases, they were given calcium lactate in 5-grain doses three times a day in a paraffin emulsion, which also contained sodium benzoate as a mild antiseptic. Finally, with a view to controlling the increase in the alkalosis after meals, ammonium chloride, in 15-grain doses three times a day, was prescribed.

Up to the present, the results of this treatment have been satisfactory on the whole, for the female patient, who had the shorter history, has been free from attacks of asthma since it was commenced and although the other patient still suffers from occasional attacks, they are less severe and the interval between them has increased considerably, so that, instead of having three or four paroxysms a week requiring adrenalin injections, as was the case before the treatment was commenced, a week or ten days now elapses.

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ON BIER'S (ARTERIAL) HYPERÆMIC METHOD.

By ARTHUR HEYS, M.B. EDIN.,

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THE words "arterial hyperæmia" have been used in contradistinction to "obstructive" or "venous," the former being produced by means of hot air, the latter by the elastic bandage or some similar appliance. To employ artificial hyperæmia means to increase the quantity of blood in a given diseased portion of the body, thereby hoping to obtain beneficial results. According to Prof. August Bier, of Berlin, an inflammation in itself ought not to be regarded as a disease, but rather as an attempt of the body to resist the attentions of an invading foe. To increase this inflammatory hyperæmia, resulting from the fight of the living body against the invader, is the aim of Bier's hyperæmic treatment. There are several methods by means of which hyperæmia may be produced: (1) by an elastic band; (2) by cupping glasses; (3) by hot air.

Any part of the body brought near to a source emitting strong heat becomes bright red or hyperæmic. The hyperæmia produced by this method is different from that caused by obstruction. The latter causes what Bier calls a "venous" hyperæmia, the former an arterial one. Heat for the production of hyperæmia has been employed as long as the art of healing has existed. It has been used as poultices, fomentations, sun-baths, sand-baths, mud-baths, Turkish baths, and in the modern electric light baths. I have had a fairly long experience, and can say that the results from the enclosed-in box are far superior to those from radiant heat, for a steady temperature can be obtained and work is possible in comfort at a much higher temperature.

The increased supply of arterial blood to any part of the body favours the absorption of chronic infiltrations, exudations, and adhesions. These chronic conditions, being the result of some previous acute inflammation, are particularly responsive to hot-air hyperæmia. This alone is a fairly wide field for operation. A great number of cases of old-standing arthritis, for example, whether rheumatic, traumatic, or gouty, which are often very difficult to benefit by the ordinary methods, are quickly relieved and cured by hot-air treatment. A second class of case that can be treated advantageously by hot-air hyperæmia is neuralgia of all varieties. If, as a witty Frenchman has remarked, neuralgia be the "cry of a starved nerve for more blood," there can be no better means of supplying its need than by subjecting it to hot-air treatment. Dry hot air permits the use of a very high temperature without injury or pain to the part to which it is applied. I have often seen the thermometer register 250° F. while the patient felt the reverse of uncomfortable—in fact, often inclined to go to sleep. For practical application in surgery, the hot-air wooden chambers and the hot-air douche are not expensive, and are now obtainable through the majority of English drug houses from abroad.

There are several cardinal rules to be observed in the treatment. The first is that there must be no pain, or even annoyance, from the heat. The second a rule I have found to work well is: the more acute the ailment that is being treated, the lower should be the temperature for a commencement. I usually use 180° F. for a first sitting. Another rule to remember is that, as the temperature of the chambers is highest in the top parts, an asbestos toe-cap should always be used for protecting the toes in the treatment of the lower limbs. Again, it is important to remember to turn on and light the gas before placing it near the closed chamber, or the results might be disastrous to the patient.

CASES WHERE BIER'S METHOD IS USEFUL.

The powerful effects of the hot-air bath can be made good use of in causing rapid absorption of exudations of blood and serum. It was whilst treating a great many football injuries, more particularly cases of blood and fluid in the various synovial sacs, where rapid absorption was necessary in order to get the player back quickly into the team, I found hot-air treatment could do in almost half the time what would be done by older methods of treatment. Thus in contused limbs and traumatic synovitis due to sprains and other causes, it gives excellent results.

A prominent Burnley player was brought to me some time ago complaining of great pain on putting the foot down. The front of the leg was swollen, tender to the touch, and shiny. He had been kicked in a match, and had had two restless nights. He had the hot-air treatment on three successive days. He played on the fourth day at Huddersfield, and was transferred from Burnley to Huddersfield on the same day for a record fee.

In December, 1930, a married woman, aged 43, fell downstairs and tore the muscle-fibres near the insertion of the left deltoid. She was advised to go to the electrical department of the local hospital. She was treated with diathermy for some time, but the condition did not improve. When she came to me in January of this year, the whole of the muscle was swollen and painful, and the shoulder-joint movements were much restricted. She had Bier's hot-air treatment on alternate days for three weeks and at the end of that time the swelling had gone, the movements were practically normal, and the pain had diappeared.

Another type of injury which I have often had to treat, and which is at times very troublesome, is the stiff joint and œdema of hand or foot which often follows a Colles's or Pott's fracture. If the limb is subjected to a fairly high temperature for a week or two the œdema as a rule disappears quickly, and the adhesions soften and can often be broken down without the aid of chloroform. Even if the latter be necessary, there is not the same inflammatory exudation after the "brisement forcé," more particularly if the hot-air treatment be continued immediately after. One often meets in practice, too, obscure joint pains, where nothing abnormal may be detected, but which are there when the patient comes down heavily, say, with one foot. Perhaps "joint neuralgias" would do for want of a better term. These I have several times seen disappear after two or three hot-air applications—and the cures have been permanent.

Fractures involving the elbow-joint are often very difficult to treat successfully. There is always risk of stiffness and even ankylosis. By using the hot-air treatment after a week or ten days, fixing the limb alternately in the fully flexed and fairly extended positions, the latter perhaps by weighting the arm at night, allowing the weight to hang over the bed, I have had results which have been, I feel sure, better than I could have obtained by other methods.

Varicose veins—more particularly those cases where the smaller veins are involved, and where ulceration has not taken place—benefit by hot-air treatment, which greatly helps other methods of treatment, such as rest. The œdema yields to the increased circulation and even in bad ulceration the base of the ulcer cleans more rapidly and cicatrisation is hastened. Care must be taken not to use a great heat, for fear of burning (160° is high enough), and to see if there are any signs of a recently formed thrombus, which would contra-indicate hot-air.

But it is principally in cases of commencing osteo- and rheumatoid arthritis that I have had particularly good results with Bier's method. True, their exact cause is still a question of great dispute, but the fact remains that in many cases hot-air has a powerful influence in causing absorption of exudates. Many times I have been able to cure a case of rheumatism which has resisted the usual methods and seemed to be drifting rapidly into the chronic stage.

I have as a periodical patient a doctor's widow with incipient rheumatoid arthritis of the right hand. The interphalangeal joints are swollen and movement is somewhat restricted. She takes guaiacol carbonate regularly and every few months comes for her "baking." She has had, so far, no progression of the disease and always states that the treatment loosens her joints and eases the pain. Even in the more chronic cases of rheumatoid arthritis the pain is greatly eased and life made more bearable.

These cases demand time and confidence on the part of the patient, and patience and perseverance on the part of the doctor.

Many cases of simple neuralgia yield to the hot-air douche (half an hour at a time). In sciatica, where no extraneous cause, such as pelvic pressure or rheumatoid arthritis of the hip, could be discovered, I have had varied results. Many cases have yielded after a few applications; *many have gone on apparently no better.*

When one considers the extensive use of Bier's hot-air boxes on the continent and in America, it is surprising that so few practitioners avail themselves of them in England. Here in Jersey I have had many patients who have come to me and told me of their having had the same treatment in Switzerland or Germany.

In conclusion, let me add that in Bier's hot air treatment we have a powerful and efficient remedy. His theory that by increasing the volume of the blood alone, Nature's remedy, a cure can be often effected, is sometimes somewhat difficult to believe, but is nearly always borne out in actual practice.

Let me here acknowledge my indebtedness to Dr. W Meyer and Dr. V. Schmieden for many little helps in the actual working of the apparatus, and for hints from their book[1] in drawing up this paper.

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[1] Bier's Hyperæmic Treatment, Phil. and London, 1909.

CLINICAL AND LABORATORY NOTES

HÆMOPHILIA IN A TWIN.

By M. De Lacey, M.B. Lond.

There are three recorded instances of hæmophilia in twins. In two of them both members were affected, whereas in the other case, one twin was normal and one was affected. The particulars of these are as follows:—

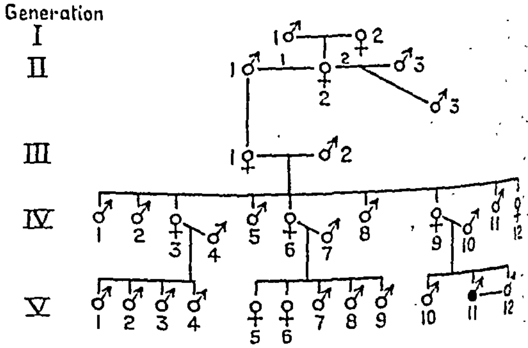
1. *Twins, one normal, one bleeder.*—Reported by E. A. Sadler in *Birmingham Medical Review* (1898, xliv., 45). This is a well-recorded and extensive family (16 cases) of typical bleeders living at Ashbourne, Derbyshire. In the fifth generation there is an instance of twins, one being a bleeder, and the other normal. The normal one died of bronchopneumonia when 2 years of age, having up to that time shown no tendency to excessive bleeding. His twin brother bruised early, but, chiefly on account of the great care taken of him, did not bleed externally until the age of 11 years, when he bled to death from a cut in the head.

2. *Twins, both bleeders.*—(*a*) Pedigree exhibited by Gould in *Boston Medical and Surgical Journal* (1857, lvi., 500). No details were given by Gould, but the pedigree of these twins figured in Bulloch and Fildes's Monograph, "Treasury of Human Inheritance," 1911, Parts V. and VI., pedigree 538. (*b*) Case reported by Max Fischer (Inaug. Diss., München, 1889). This was the history of a large family in the Würtemberg district of C, near Pforzheim. The facts about these twins were:—

1. *Ludwig Friedrich*, aged 23 years, a severe bleeder. The slightest injury caused great losses of blood. He was exempted from military service, because a wound on his finger bled for six months.

2. *Karl Friedrich*, twin with Ludwig Friedrich. At the age of 9 months, while cutting one of his teeth, a blood vesicle formed, and from it he bled continuously until he eventually died.

In the following case which has come under my care one twin is normal, while the other is a typical bleeder. The twins are both boys. I have managed to trace the family back for five generations, as the accompanying figure shows, but no other instance of a bleeder can be found in the family.



Generation I.—I (2) died at 83 years. Family history not known.

Generation II.—II (1). First husband of II (2). II (3) second husband of II (2). II (2) died of cancer, aged 40 years. She had no brothers or sisters.

Generation III.—III (1) husband of III (2). III (2) died of apoplexy, aged 72 years. III (3) son of II (2) by II (3), died of a stroke at 54 years. (*Not a bleeder.*)

Generation IV.—IV (1) not a bleeder, aged 62 years. IV (2) not a bleeder, aged 59 years. IV (3) married IV (4). IV (5), aged 51 years, not a bleeder. IV (6) married IV (7). IV (8) died, aged 48 years, not a bleeder. IV (9) mother of twins, one of whom is a bleeder. IV (10) *husband of* IV (9). IV (11), aged 40 years, not a bleeder. IV (12) died of pneumonia, aged 3 years.

Generation V.—V (1), aged 31 years, *not a bleeder*. V (2), aged 30 years, not a bleeder. V (3), aged 25 years, not a bleeder. V (4) died of *measles*, aged 2 years, not a bleeder. V (7), aged 10 years, not a bleeder. V (5), V (6), V (8), V (9), stillborn children. V (10), aged 21 years, not a bleeder.

Twins.—V (11), Robert A, aged 11 years, *bleeder*. V (12), Arthur A, aged 11 years, not a bleeder.

Robert A.—V (11). Now aged 11 years. At 3 months he had a painful swelling of the right shoulder, which soon got well. At 10 months he bit his tongue with a newly erupted tooth, and the cut bled continuously for one week. At 18 months a cut on the lip bled for one week. Since then this boy has bled on the slightest injury. He has had several attacks of profuse epistaxis, and large spontaneous bruises over different parts of the body. He has had several attacks of hæmorrhage into joints, particularly the elbow and knee, but also the wrist-joints and ankle-joints. There have also been several attacks of melæna, and on different occasions hæmorrhage into the scrotum. At one time he received injections of horse serum, but this was given up because of hæmorrhage at the site of needle punctures. On July 17th of this year he received an injury to his foot, and the resulting wound *bled continuously for* over a week. On the day following, hæmorrhages under the tongue and into the skin of the arms, chest, abdomen, and thighs showed themselves. The generalised bleeding which occurred on the day following the injury is interesting. It may be that the injury resulted in the production of some substance which diminished the coagulability of the blood, and so caused the scattered hæmorrhages of the next day. This would explain the attacks of bleeding which occur frequently without any apparent cause.

Arthur A.—The other twin V (12) has never showed the slightest tendency to bleed unduly.

I should like to express my thanks to Prof. William Bulloch for the interest he has shown in this case, and the help he has given me in regard to the other cases quoted.

Sheerness, Kent.

A CASE OF CANCRUM ORIS.

By J. J. O'Donoghue, M.R.C.S. Eng.,

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IN view of the comparative rarity of cancrum oris nowadays, the following account of a case, which I recently had the opportunity of observing, may be of interest.

The patient, a male infant aged 2 years, was admitted to the Hallam Hospital, West Bromwich, with a diagnosis of broncho-pneumonia following whooping-cough and with a history of also being a measles contact. On examination the diagnosis was amply confirmed, the child being acutely ill and presenting well-marked signs in both lungs; the temperature and the pulse- and respiration-rates were respectively 102·6°, 150, and 80.

On the morning after admission the tip of the nose and central portion of the upper lip were noticed to be swollen and of a deep bluish colour, somewhat resembling a traumatic hæmatoma. There was, however, no history of injury. The same evening the discoloured area had increased in size and involved a wedge-shaped area with its apex at the tip of the nose and extending to the corners of the upper lip. A diagnosis of cancrum oris was then made. By next morning the lower lip had become involved and the affected area was of a dry shrivelled appearance, deep black in colour, and surrounded by a definite red line of demarcation.

During the following day separation of the gangrenous area commenced by a process of ulceration, which began in a small spot near the right nostril and slowly encircled the necrotic area, taking seven days to become complete. During the process the line of ulceration was covered by a black dried-up slough, from under which thin sanious pus kept continually oozing. The complete separation of the nose and upper lip occurred two days in advance of the separation of the lower lip. During this period the child became progressively weaker and more toxæmic and developed an evil-smelling oral discharge. The gangrenous area also had a fœtid odour. When the sloughs had completely separated, the denuded area showed pus and unhealthy looking granulation tissue at its edges.

The child, who had been desperately ill, now underwent a slight but definite improvement and, considering the state of the mouth and nose, its general condition was, if anything, surprisingly good. This improvement was not maintained, however, and the patient gradually grew more exhausted and cyanosed, while toxæmic features became very manifest and about one week later death occurred in the early hours of the morning, approximately 18 days after admission to hospital. There was no *post-mortem examination.*

The pulse-rate remained at the high figure of 150 throughout the whole illness. The fever was of a hectic type, the temperature falling to 99° or 100° every morning and reaching 102° or 103° in the evening. For the two or three days following the separation of the nose and upper lip it fell slightly but later resumed its previous character which it retained until the end. The respiration-rate during the early part of the illness varied between 60 and 80 per minute. It showed a temporary fall corresponding with the fall in temperature, rose again to 60 per minute for a day or two and finally fell to 40 per minute, at which figure it remained until the termination of the case.

Swabs were taken of the oral discharge and also from the surface of the ulcerated area and on culture a hæmolytic streptococcus of the type beta (Smith and Brown) was isolated.

As regards treatment, it was decided that, in view of the seriousness of the child's chest condition, active surgical intervention was out of the question and the treatment adopted consisted of the application of antiseptic dry dressings and later, fomentations to the affected area, which, along with the mouth, was swabbed and irrigated with hydrogen peroxide at frequent intervals. Brandy and oxygen were administered periodically.

I am indebted to Dr. Douglas Stanley, of Birmingham, for permission to submit these notes for publication.

BOVEY TRACEY COTTAGE HOSPITAL.—Miss Violet Wills recently laid the foundation-stone of a new cottage hospital at Bovey Tracey, the site for which has been given by Mrs. Trelawny. There will be two wards of four beds, two private wards, and a theatre, and the cost will be about £3000.

HOSPITAL EXTENSIONS.—Lord Derby recently opened a new wing of the Stretford Memorial Hospital, Manchester. The additional wing contains two wards of 16 beds each, one for men and the other for women, *four private* wards, and a theatre; hitherto male patients have not been admitted. The hospital now has 48 beds, eight of which are reserved for maternity cases.—Mrs. H. K. Stephenson recently opened, and the Bishop of Sheffield *dedicated*, extensions of the Sheffield Children's Hospital. The work includes improvements in the out-patients' department, the furnishing of a new nurses' home, the *reinstatement* of a ward used temporarily for ultra-violet light and massage, and the provision of new accommodation for those departments. The improvements have cost £12,000, provided by the sale of securities entailing a reduction of the annual income by more than £500.—A new ward *of four* beds at Swanage Cottage Hospital has been opened by Sir Ernest Scott. It is intended for special treatment and emergency cases.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE.

SECTION OF PSYCHIATRY.

AT a meeting of this section on Nov. 10th, Dr. BERNARD HART delivered his presidential address on

Psychology and Psychiatry.

It would seem, he said, to be a self-evident proposition that psychology and psychiatry should be intimately associated and mutually *dependent*, yet in text-books of psychiatry psychology was often abandoned altogether when an attempt was made to seek causal processes. There was a clear underlying implication that the psychological series constituted a surface froth beneath which lay solid realities only to be investigated by the weapons of other sciences. The word "psychology" was used in two senses: on the one hand it denoted concern with the "mental" or "subjective" group of phenomena; and on the other hand it meant an attempt to explain behaviour and mental processes by conceptions built out of the stuff of subjective experience. It was in the latter sense that some psychiatrists denied to psychology any useful place in the sphere of psychiatry. Every science advanced through three stages: the enumeration and collection of observed phenomena; the classification of these phenomena; and the endeavour to discover causal processes acting according to definite laws, which would explain the incidence of future phenomena. Almost all psychiatrists would accept psychology as far as the first two stages were concerned, but many absolutely refused to go further. It was clearly of fundamental importance to decide whether psychology was for the psychiatrist an *ignis fatuus* or a scientifically valid approach to his problems. Any attempt to push psychology beyond the descriptive stage had been beset with extraordinary difficulties, and for the most part the psychologist had only been allowed to record the phenomena of psychiatry and to attempt a crude grouping of them, any progress towards the third stage of causal conceptions being left to the physiologist and the chemist. This discarding of psychology had been conditioned, not only by its conspicuous failure to assist, but also by the materialism which had dominated the earlier history of science. The failure had been due, not to the intrinsic defects of psychology, but to ignorance of its possibilities and a faulty method of approach. Kraepelin's work, a study of longitudinal instead of transverse sections of mental disease, had given rise to the hope that his method would open up a great field of profitable research. This hope, however, had not been realised, although his conceptions of dementia præcox and manic-depressive insanity remained generalisations of great value. This was because the more fertile conception of reaction-types had replaced the older notion of disease-entities. Kraepelin had recorded phenomena in psychological terms; he had broken down the old symptomatological impasse and shown that the second stage of scientific method could be achieved without abandoning psychology. He had opened a road in psychiatry along which psychology had been able to make notable progress, but had not himself moved along that road.

ADVANCE OF PSYCHOLOGY TO THIRD STAGE OF SCIENTIFIC METHOD.

Important landmarks in this advance had been Charcot's remark that the phenomena of hysteria seemed to be the result of "ideas," and the exploration of this avenue by his pupils, Janet and Freud. It was difficult for the present generation to realise how extraordinarily refreshing Janet's work had been to those who had tramped through the arid wastes of academic psychology, seeking unavailingly for some help in the problems of life and medicine. His conception of dissociation cast a flood of light both on the psychoneuroses and psychoses. Hallucinations, delusions, and the bizarre utterances of dementia præcox could be regarded as manifestations of dissociated currents running contemporaneously in the field of consciousness, and some understanding could thereby be reached of what had hitherto been a chaos of mental processes.

The very essence of Freud's contribution to psychiatry was his systematic attempt to apply to its phenomena the concepts of meaning and purpose. He had introduced dynamic concepts while still remaining within the psychological field. He had advanced to the third stage of scientific method and constructed causal concepts out of psychological stuff—an epoch-making step which, if it could be established, raised psychology to a level with the other scientific disciplines which served psychiatry. He had finally produced a complex picture of entities acting and interacting according to fairly precisely defined laws, by which he believed it possible to explain, not only the phenomena of the psychoneuroses and psychoses, but also a considerable part of the general activities of the human organism. He had produced a body of theory and practice which, however faulty it might ultimately prove, and however it might be battered in the future slow growth of knowledge, would remain the first consistent attempt to apply to medicine a conceptual psychology built along the lines which had proved so fertile in other branches of science.

Out of his work had arisen that of Jung on dementia præcox, which had shown that, by the application of Freudian conceptions, the symptoms could be interpreted psychologically in an extraordinarily illuminating and refreshing manner. From that time onward the psycho-analytical attack upon the psychoses had been unremitting. Abraham had brought the libido theory definitely into relation with the psychoses, and his line of thought had led to Freud's conception of narcissism. The more recent work was necessarily intricate and unintelligible without a full knowledge of its background. Only two things needed note: first, that the psychoanalyst of to-day was prepared to give a psychological interpretation of the phenomena of the psychoses, those phenomena being shown as the result of forces working according to definite psychological laws; secondly, that in this interpretation he had found it necessary to employ an increasingly elaborated series of conceptual abstractions.

OTHER LINES OF ATTACK UPON THE PSYCHOSES.

Adler had brought the psychoses into line with the general psychological conceptions he had devised to explain the psychoneuroses. He maintained that psychosis appeared when the patient felt absolutely checkmated, with no hope of going on. Although his views were clearly unduly simplistic, they cast considerable light on some phenomena. Jung, approaching the subject from a very different standpoint, interpreted the psychoses in relation to his basic concepts, and he also achieved a measure of uccess. All these interpretations differed prooundly from one another, but none of them was ecessarily wrong.

The researches of Pavlov belonged to the sphere f physiology, and the behaviouristic psychology which ad been built upon them was not psychology in the ense in which the word was used in this address; t expressly declined to have anything to do with ubjective experience. *Gestalt* psychology had up o the present mainly concerned itself with phenomena ss complex than those that troubled the psychiatrist, ut promised to be of great assistance in the future. retschmer's work had provided a most illuminating evelopment of the reaction-type as opposed to the isease-entity system. The correlation with physical haracters was the crux of the matter, and led raight into the physiological field. Many other vestigators had attempted to link up the psychogical and physiological methods of approach, but ot much solid success had been achieved. Other pproaches excluded even the most temporary use psychology and built up explanatory causal nceptions exclusively on anatomical, histological, chemical data. There was no possible objecon to this procedure as a method of approach, ut an attempt to write Hamlet without introucing the Prince of Denmark was unlikely to bring *mplete* understanding.

A PLEA FOR TOLERATION.

There was no answer to the preposterous question: Which of these roads is the right one?" It was bsurd to suppose that any science had the right to re-empt a particular sphere of experience and to warn her investigators from trespassing thereon. The llacy of "either—or" so far as the approaches to sychiatry were concerned, must be strenuously ombated, and every method of approach must be ven a free hand. It was reasonable to ask whether ne method could be regarded as more promising han another, but it would be difficult to obtain an nswer not conditioned by the traditions, habits of hought, and prejudices of the man who gave it. he attitude of tolerance could be applied not only the major question of the respective claims of the hysiological and psychological methods, but also the divergences within the psychological method self. Freud, Adler, and Jung each succeeded in lluminating some facets of the phenomena of sychiatry more satisfactorily than the others. It as reasonable to ask each school to push its conceptions as far as they would go, and only to discard hem if phenomena were found which directly contraicted them. Although science allowed each of its embers to play freely in its own ground, this permit as not perpetual; there must be a constant search r wider generalisations and an attempt to incorporate he findings of the newer sciences in the more universal rmulæ of the older ones. There seemed to be good round for hoping that we should in future be able o express the conceptions of psychology in terms of hysiology; later in those of physics and chemistry; nd perhaps ultimately in the universal formulæ f mathematics. It was, however, by no means nconceivable that at some point the road would be bsolutely blocked. Certain conceptions—"purpose," or example—seemed altogether resistant to any ttempt to incorporate them in the framework f mechanistic science, and the sequences of psychology nd biology seemed to be essentially irreversible, and ence unlike those dealt with by physics and chemistry. This did not in the least mean that psychology could ot remain a science, for the essence of science was simply the employment of a certain method, and not the adoption of mechanism.

In the recent past there had been a procession with the physicist and chemist in the van, the physiologist in the middle, and the psychologist in the rear, each member pushing to get as near the front as possible. Now the physicist of to-day was abandoning mechanism; he believed the stream of knowledge to be heading towards a non-mechanical reality, and the sphere in which the advance guard was moving seemed to have a colouring akin to the stuff of psychology. It seemed conceivable therefore that the procession would turn into a wheel and the psychologist, struggling perspiringly in the hope that he might ultimately attain to the van, might find that van already treading on his heels. It might nevertheless be argued that psychologists could only advance along the road which other scientists had travelled, but the obstinate refusal of psychological phenomena to fit comfortably into the framework of mechanism justified the belief that other avenues of approach were also worthy of effort. Even the method of science itself might prove an imperfect weapon for the psychologist. Jung had frankly adopted this position, which accounted for the perhaps unfairly expressed accusation of mysticism levelled at him. The method of science was not a unique, absolute, and unimpeachable key to knowledge; it was merely a particular system of attack which had proved so successful in enabling us to understand and control our experience that we were in danger of worshipping it as an absolute god.

No one approach could claim an exclusive divine mission to govern psychiatry. The formulations which would embrace all the facets in comprehensive generalisations lay very far ahead; at the moment neurologist, physiologist, chemist, and psychologist could only be asked for all the help they could give.

SECTION OF ANÆSTHETICS.

AT the opening meeting of this section on Nov. 6th, the President, Dr. G. RAMSEY PHILLIPS, being in the chair, a discussion on

Anæsthesia for Diathermy and Endoscopy

was opened by Dr. H. W. FEATHERSTONE. Two important recent developments in surgical technique—namely, the use of high-frequency current for cutting or burning tissues, and the examination of cavities and viscera of the body by illumination with electric lamps—had, he said, brought certain risks when employed in operations on the lungs and air passages and in the neighbourhood of the mouth, for which inflammable anæsthetics were used. In many operations chloroform or a local anæsthetic alone was employed, but chloroform was not always advisable, and local anæsthesia might not be practicable. Although chloroform did not burn, even in an oxygen atmosphere, yet if heated strongly it disintegrated, and the product phosgene was highly poisonous, while other resultants irritated the respiratory mucous membrane. Under ether anæsthesia it might at any stage be necessary to employ diathermy, hence the need for the anæsthetist to be acquainted with the mechanism of explosions. Sometimes a mere pin-hole in a gas bag was the responsible defect; or a gauze mask impregnated with ether might be placed near a running electric motor. In a case in Canada, attended with fatal results, a patient was anæsthetised for a pharyngeal operation with ethylene and oxygen; diathermy becoming necessary, the ethylene was stopped and nitrous oxide and oxygen was given for some minutes. After the diathermy application had been proceeding for a few moments an explosion took place, fatally injuring the patient. It was held to have been due to some of the earlier ethylene-oxygen having been swallowed and then regurgitated at the later stage. On the other hand, Dr. Lundy, of the Mayo Clinic, stated that in a series of 30,000 ethylene administrations there had not been an explosion. Sometimes the blowing of ether and oxygen into the pharynx by means of an intranasal or intraoral tube had resulted in explosions. Ether-oxygen mixture might ignite at a temperature of 190° C.

Realising the danger of explosion, it was a common practice for anæsthetists to use an apparatus which permitted administration of ether-air or ether-oxygen at the commencement of the operation, changing to chloroform-air or chloroform-oxygen a few minutes before an electric lamp or a diathermy apparatus was to be used. That was the procedure at a recent operation with fatal result in Birmingham. The autopsy in this case showed extensive bruising of the pharyngeal mucous membrane, with a ragged tear three-quarters of an inch long in the mucous membrane of the left pyriform fossa, the underlying tissues being infiltrated with pus. The bronchi were intensely congested. Evidently the first explosion occurred in the patient's mouth, and was transmitted along the rubber tube to the anæsthetic apparatus; defective contact between the lamp and the holder produced the sparking. It was important to remember that ethylene-oxygen should never be used in conjunction with any form of electrical appliance, with its wide range of explosibility, from 2 to 20 per cent. The ether-air mixture which was delivered into the trachea from an intratracheal ether apparatus, if sufficiently rich to maintain anæsthesia, could always be ignited, and this must be remembered when diathermy of the lung was to be performed.

A pertinent question was: Was the exhaled air and ether from the lungs of a deeply anæsthetised patient combustible? To test this Dr. Morgan and he had applied a spark or flame to (1) specimens of expired air and ether collected immediately after the withdrawal of a heavily impregnated ether mask; (2) the collected expirations during deep ether anæsthesia; (3) a mixture which was exhaled immediately after a deep inspiration of a strong ether-air mixture. It was impossible to ignite any of these specimens. Presumably this accounted for the rarity of cases of serious damage to patients in whose mouths a mild explosion or a burst of flame had occurred during the intrapharyngeal administration of ether and air. Hence it seemed that to apply diathermy in the mouth of a patient to whom ether had been administered was safe, provided: (1) the patient took a dozen breaths of fresh air following the discontinuance of the ether administration; and (2) care was taken to ensure that the stomach was not distended with ether vapour and air which might have been swallowed during induction. Nitrous oxide was not a combustible gas. He had found that the administration of a basal narcotic prior to the induction of anæsthesia enabled him to use gas-oxygen or very light chloroform anæsthesia, or, in some cases, to withhold the anæsthetic agent altogether during the diathermy or endoscopy. For cases liable to have bleeding into the lung or air passages an adult dose of grs. 3 to 4½ of nembutal by the mouth gave a short partial narcosis without depressing the respiratory centre, and there was an early return of the pharyngeal and laryngeal reflexes. Avertin and pernocton had been valuable in these cases.

INVESTIGATION OF EXPLOSIVE CONDITIONS.

Mr. J. D. MORGAN, D.Sc. (Birmingham), who illustrated his statements by experiments, said that most gases were only capable of supporting combustion when mixed with air or oxygen in proportions which lay between certain limits. If a mixture of maximum inflammability were ignited in a glass tube, the flame moved rapidly through the whole tube; either a richer or a weaker mixture would burn less rapidly, but the flame would not be extinguished until it had passed through the whole tube. The lower limit for ether-air was about 2 per cent., but the upper limit did not seem capable of very precise measurement. The lower limit of ether-oxygen was slightly less than 2 per cent. With downward propagation of the flame the upper limit had been given by different authorities as 26 per cent. and 40 per cent.; with upward propagation of the flame the upper limit might be as high as 90 per cent. of ether vapour. In ether-oxygen, increase of the oxygen content increased the ignitibility of the mixture. An ether-air mixture of strength sufficient for anæsthesia would stand a large spark without exploding, but the same spark would readily ignite a mixture of the same proportions consisting of ether and oxygen. He emphasised the relatively low ignition temperature of ether-air and ether-oxygen mixtures. Ether vapour ignited at the relatively low temperature of about 190° C. Liquid ether, when contaminated by impurities, might ignite at a temperature as low as that of boiling water. It was very important for the anæsthetist to know that rich ether-oxygen mixture would ignite more readily than a corresponding ether-air mixture. When ether and oxygen were combined in a maximum inflammability mixture the greatest danger existed, and the slightest spark would cause ignition. He had found that the mixture of ether which could be obtained when air or oxygen was passed through the chloroform bottle of a Shipway apparatus was one approaching maximum inflammability, so in the Birmingham case the risk of explosion which existed while the patient was receiving chloroform was much greater than when ether was being administered. That was because the outlet of the ether bottle was always open to the delivery pipe, and ether vapour was free to pass to the delivery pipe by either diffusion or suction. This danger was increased when warm water was placed around the ether bottle; conversely, the danger might be absent when the ether was very cold.

Dr. Morgan had, he said, arrived at two conclusions: (1) that no electrical apparatus of any kind capable of giving a free spark or exposing a hot surface should be inserted into the mouth of a patient while ether-air, and especially ether-oxygen, was being administered; (2) that the Shipway apparatus, when employed in operations in which risks of ignition occurred, ought to be fitted with a cock which closed the outlet from the ether bottle when the air or oxygen was diverted to the chloroform bottle. He exhibited a specimen pencil light and a cock devised to obviate the kind of risks which preceded the Birmingham explosion. In the lamp a spring contact was arranged in the bulb socket, hence no sparking could occur between the bulb and the socket while in the mouth of the patient; and the lamp could be readily sterilised if necessary.

DISCUSSION.

Mr. MUSGRAVE WOODMAN said that everything possible had been done at the Birmingham operating theatre to make for safety; there were fire-proof switches, and power was carried off by leads from outside the theatre; no sparking took place in the theatre itself. Laryngologists should insist that, whatever the patient's condition, oxygen should never be used when a lamp was placed in the mouth. Personally he did not rely on switching on chloroform. He always inserted the lamp the moment the anæsthetist stopped, so as to secure the richest mixture in the mouth; he did not wait for inflammable dilution.

Dr. C. F. **Hadfield** spoke of the part which might be played in these accidents by a chemically harmless gas of itself when it was supporting combustion, a fact noted by Priestley in 1776. He drew attention to the valuable work in these subjects done by the late Prof. H. B. Dixon, and said the attitude of the anæsthetist should be one of excessive caution. The danger of a serious result from explosion was greater if the vapour was being administered endotracheally. The use of the diathermy knife increased the range of danger, even if the spot at which it was employed was some distance from the actual anæsthetic. Ether had been found capable of getting through the towel surrounding the patient or round its folds.

Dr. **Kirkby Thomas** related an incident within his own observation which showed at what a low temperature ether vapour would explode. Possibly the mere heat of a lamp might suffice.

Dr. A. **Lowndes Yates** spoke of the chance of the aspirating apparatus for the removal of mucus from the nose becoming sufficiently hot to cause explosion.

Mr. V. E. **Negus** said that if the suction pump was properly enclosed there should be no risk. Regarding the possible danger from the use of headlights by the laryngologist, the majority of endoscopic examinations could be carried out without a general anæsthetic, and with diathermy chloroform could be employed.

Dr. **Langton Hewer** said he had carried out intubation under ether anæsthesia, and he had never heard of a case of explosion in those conditions. He also referred to possible risks when giving anæsthetic mixtures in a private room a few feet from a fire.

The **President** reported a case of combustion occurring in a gas and oxygen apparatus said to be due to the sudden liberation of oxygen at high pressure (1750 lb. per square inch) into the closed space between the bottle valve and the reducing valve. The heat produced by the sudden compression of the air between the two valves is sufficient in the presence of oxygen to ignite the material of which the valve is composed. He had been told also by the manufacturers of oxygen that appreciable quantities of ether had occasionally been found in oxygen bottles returned for refilling. To reduce the risk in the first case the reducing valve should always be opened first and the bottle valve then turned on very gradually. To avoid the second the oxygen valve should be turned off immediately the bottle is empty.

Mr. W. G. **Howarth** spoke of the value of basal narcotics in cases where inhalation anæsthetics involved explosive dangers. With the help of the former he had carried out many such operations with no additional anæsthetic at all.

SECTION OF SURGERY.

At a meeting of this section held on Nov. 4th, the chair being taken by the President, Mr. C. H. **Fagge**, a discussion on the

Treatment of Acute Osteomyelitis

was opened by Mr. **Gwynne Williams**. The first difficulty in discussing this subject was, he said, the great variety of the disease combined with its infrequent occurrence. Acute osteomyelitis he would define as a sudden illness associated with fever and evidence of inflammation of the bone, the duration being in days rather than in weeks; he would limit his remarks to cases occurring in the long bones and due to the *Staphylococcus aureus*. It was improbable that the same treatment would be successful in both streptococcal and staphylococcal infections The great difference in the adult bone was slowing of the process, so that the cases were subacute rather than acute, and might be excluded from his definition. In assessing results he thought it best to consider first the immediate mortality; secondly, the saving of the limb; thirdly, the extent of suppurative necrosis; and fourthly, the usefulness of the limb in after-years. Of 91 cases under his care seven had been adult, and 18 deaths had occurred. In most of these cases the organism had been recorded as a staphylococcus. Ten deaths had occurred within one to four days of operation and probably could not have been prevented by operation; they had been septicæmias. One case had died without operation. The remaining seven had died about ten days after the bone had been laid bare to the extent to which pus had been visible. The fever had persisted and there had been pericarditis or other sign of widespread infection. Spread had not, therefore, been prevented by surgical intervention, which might, indeed, have put the patient at a disadvantage.

THE STARR AND ORR TECHNIQUES.

Recently surgeons had tended to drain by trephining holes, rather than by the wider gutter exposure. It was doubtful whether the new method of removing the whole bony focus would prove to be of general application, though it had produced striking results in certain cases, notably of infection of the fibula and femur, and particularly in affecting the illness of the patient. The practical choice lay between guttering the medulla and drilling. It was doubtful if the widest opening-up produced adequate drainage; the fever abated very gradually whatever method was used. Dramatic falls of temperature might be expected from adequate drainage, but were practically never seen. The extensive opening had failed to prevent a high mortality. Therefore, in the early days of a case, less severe measures should be undertaken. It was not always necessary or even desirable to open up the bone at all. Mr. Williams quoted a case in illustration of this point.

In the post-operative treatment every effort must be made to maintain the patient's general resistance; they should be treated in the open air and kept free from pain by efficient splinting. Orr's method of vaseline and plaster-of-Paris was a great advance; its disadvantages were the foul smell and the difficulty of inspecting the wound and the limb. This latter was not very serious, as the plaster could easily be removed if the general condition suggested that all was not well. The method gave the patient great peace. Blood transfusion had not, in Mr. Williams's experience, been a success in cases of infection.

The possibility of saving the limb depended largely on the extent of invasion of the neighbouring joint. The problem varied from joint to joint. The less done to the bone the smaller the sequestrum.

Mr. **Eric Lloyd** quoted a series of cases from Great Ormond-street. He said that his statistics proved nothing, save that the mortality was often about 30 to 35 per cent. There was no hard-and-fast line between acute, subacute, and chronic, and it was very difficult to find a via media in selecting cases. His series had undergone different operative procedures by different surgeons. Of 40 cases, 27 had recovered.

and 13 had died. Of the 26 staphylococcal cases 10 had died and 16 had recovered. The pathology hitherto taught to students had been that of the dead rather than of the living—or dying—bone. The point at issue was whether invasion of the medullary cavity occurred early or late. Starr's slogan had been, "Drain the metaphysis; spare the diaphysis," but the metaphysis was, of course, really part of the diaphysis. The thinnest part of the bone was close to the epiphyseal cartilage and a perforation would usually be found, if sought, at the highest point of the abscess. Occasionally, simple incision of the periosteum led to dramatic benefit; these were cases where Nature's perforation was adequate. Starr had believed that medullary infection was not a direct spread but occurred by tracking up the Haversian canals from the subperiosteal abscess, and that the medulla could safely be left to look after itself.

Mr. Lloyd described two cases illustrating the good results of drilling into the metaphysis and putting the limb in plaster. Open-air treatment by Orr's method was of great advantage to the patient.

GENERAL PRINCIPLES.

Mr. W. H. **Ogilvie** said that his figures had only revealed two well-known facts: that osteomyelitis was a rapidly disappearing disease and that the death-rate depended more on the length of the illness and the particular bone affected than on any line of treatment. Treatment must therefore depend on eternal principles; there was a disquieting tendency at the moment to follow fashion rather than principle. The speaker found himself becoming more and more insular in the matter of osteomyelitis—i.e., a supporter of the gutter method as recently improved. The spread of infection was arrested for a considerable time by the cancellous tissue, as shown by Starr's reasoning and the practical success of limited drainage. Nevertheless, it was doubtful whether a series of drill holes gave adequate drainage. An abscess could only heal by the falling together of its walls, and the Starr technique left a rigid walled cavity with a tendency to sequestrum formation, subsequent wide inflammatory processes, and recurrence.

The Orr method had not deserved the recognition it had received in this country; it had arisen out of special war conditions. It would remain the best method where there was a shortage of materials or of nurses. Many lives had been saved by it, but at the expense of much fibrous tissue. Scar tissue meant loss of function and liability to recurrence. Gutter operations need not sacrifice a large area of bone, involve painful dressings, or leave a scar attached to bone. The method might learn circumscription from Starr and immobilisation from Orr. It should leave healthy tissues in contact with the gutter, and remove one-third of the circumference of the bone in the area where pus was found in the cancellous tissue. The limb was slung, and drainage was supplied by Carrel tubes; two-hourly irrigation was carried out until the general condition showed that infection was dead. Dressings need only be changed once a week and the change was painless. Any subsequent operations through smooth, healthy skin were easy and likely to have good results.

Mr. **Max Page** did not think it possible to work from principles in this matter; his impression was that trephining was the best method. He was convinced that extensive operations caused more sequestration and more trouble afterwards. Half the cases had a bacteriæmia and yet recovered. The surgeon could not save the fulminating case, however early he intervened. He agreed that blood transfusion had not proved helpful. The Orr method was detestable and quite impossible in a closed ward, but it must have something in it, and it reminded the surgeon that bathing in pus might not always be a bad thing.

SEQUESTRA DUE TO OPERATION.

Mr. A. J. **Gardham** suggested that a very large amount of the sequestration seen was due not to the osteomyelitis but to the operative interference. He showed X rays to support this thesis, and declared that in 70 per cent. of cases sequestra were determined by the position and extent of the operation. Opening the bone did not help the prognosis in the acute stage and actually hindered smooth convalescence. There were certain cases in which sequestration would occur and nothing the surgeon did would affect it, but in the ordinary mild case sequestra were the direct result of treatment.

Mr. C. C. **Holman** quoted a case illustrating the acute septicæmic type of the disease, and declared that immediate operation was unwise in these cases. Many lives had been lost by early operation in streptococcal osteomyelitis. Of 21 moderate cases in his experience, pus had only been confined to the bone at the time of admission to hospital in two. Where the pus was under the periosteum he often did not open the bone; there had only been one death. The subject was well worthy of a collective investigation. More radical methods, such as resection of the diaphysis, might give better results in the survivors but were not worth a higher death-rate. Operation should often be delayed to allow the patient to acquire general resistance, and interference should be the minimum possible. He advocated packing with bipp gauze, and Cotton's treatment by 1/15,000 saline solution of mercury perchloride for subacute infections of the knee-joint.

Mr. J. P. **Hosford** showed an X ray of a case in which the disease had invaded the epiphysis, and mentioned that in a few cases arteries were found actually transgressing the epiphyseal cartilage. He asked the best way of dealing with such a condition; to attack and destroy the cartilage, or to allow pus to enter the knee-joint and then drain it?

Mr. O. L. **Addison** said that the meeting had filled him with the deepest despondency. Were we really returning to the surgery of 60 or 70 years ago, the surgery that had filled our museums? He agreed with Mr. Ogilvie, and found himself unable to believe that a trephine hole gave adequate drainage. He had never had a sequestrum after a gutter operation; sequestra followed inadequate guttering. The best treatment for severe involvement of the femoral shaft was amputation.

Mr. **Kenneth Heritage** said that apart from the fulminant septicæmic cases for which little could be done, the whole crux of treatment lay in early diagnosis. Thus any child showing localised exquisite tenderness over a long bone, combined with fever and other evidence of sepsis, should have that bone explored. Diagnosis should not be delayed until either a subperiosteal abscess or gross œdema of the soft parts called for interference, as a negative exploration could do no harm. It was in such cases, diagnosed early, whilst the infection was still limited to the metaphysis that the methods of Starr and Orr found their chief field of application. The simpler and less shock-producing technique of Starr had given better results than wide guttering. Under a tourniquet the periosteum was exposed and incised at the point of maximum tenderness. If no pus was found under the periosteum the metaphysis was drilled at intervals starting near the epiphyseal line. A trephine disk was then removed having for its centre the drill hole from which pus was seen to exude. The cavity was then packed with vaseline gauze, the skin incision brought loosely together, and the limb immobilised. Plaster was useful in affording freedom from movement and interference. The three most important principles of treatment were early diagnosis, metaphyseal drainage without opening the medullary cavity, and absolute immobilisation.

Mr. GWYNNE WILLIAMS briefly replied.

LIVERPOOL MEDICAL INSTITUTION.

A MEETING of this Institution on Oct. 29th, with Prof. W. BLAIR BELL, the President, in the chair, was devoted to a symposium on

Intracranial Tumours.

Dr. T. B. DAVIE divided these growths into the following groups: (*a*) gliomas, 41·2 per cent.; (*b*) meningiomas, 12·5 per cent.; (*c*) auditory nerve tumours, 9·4 per cent.; (*d*) pituitary and hypophyseal stalk tumours, 21·7 per cent.; (*e*) secondary carcinomas, 4·7 per cent.; (*f*) granulomas, 2·7 per cent.; (*g*) blood-vessel tumours, 1·7 per cent.; and (*h*) miscellaneous tumours. He showed several examples of acoustic nerve tumours, and demonstrated their essentially fibromatous structure, constrasting it with the endotheliomatous structure of the meningiomas. In discussing the gliomas he adopted the classification of Bailey and Cushing, with some of the modifications suggested by Carmichael and by Penfield. In conclusion, he pleaded for further and more general study of these interesting tumours.

Dr. HENRY COHEN pointed out that the signs and symptoms of intracranial tumour arose from the presence of a foreign body, gradually increasing in size, in a relatively non-expansile chamber and from the site and nature of the foreign body; hence the complete diagnosis must comprise an answer to all three questions: whether, where, what? The general signs resulted from a gradually increasing intracranial pressure, and this depended on and varied with the size and rate of growth of the tumour and on interference with the circulation of blood and cerebro-spinal fluid, especially the latter. The localising signs of a tumour were produced by increase, perversion, decrease, or abolition of cerebral function; resulting from (1) destruction of nerve elements; (2) pressure on, with displacement of, nerve elements and resulting loss of function; or (3) interference with the circulation of blood and cerebro-spinal fluid, especially the former. Dr. Cohen laid special stress on generalised epileptiform convulsions as an early expression of increased intracranial pressure. Papillœdema, he said, was relatively uncommon in early supratentorial lesions. In diagnosis inspection, palpation, percussion, and auscultation of the cranium were required. The chief accessory means of diagnosis were examination of the cerebro-spinal fluid and radiography; other methods—such as brain puncture (Pfeiffer) and the electrical resistance method of Bohnenkamp and Schmäh, were of interest but not of routine clinical value. Manometry, combined ventricular and lumbar puncture, and especially the examination of cerebro-spinal fluid were important, though the danger of lumbar puncture, especially in subtentorial neoplasms, was very real. Radiography was of help, both directly and indirectly, after the injection of contrast media. In attempting pre-operative diagnosis of the nature of the tumour, the points needing most careful consideration were the age of the patient, the site of the tumour, the mode of evolution of symptoms, evidence of disease elsewhere, and such accessory tests as serological, cutaneous, blood and cerebro-spinal fluid examinations, auscultation, and radiography.

Prof. R. E. KELLY said that trephining was probably one of the oldest surgical operations, going as far back as neolithic times. Hippocrates, Galen, and Celsus used the trephine and gave practical hints for its use. In a work by Scultetus in 1650 there were numerous illustrations of head operations performed by instruments similar to those in use at the present time. Broca might be looked upon as the founder of cranial surgery, for he was the first to trephine for abscess. Prof. Kelly demonstrated the more modern instruments of Hudson, de Martell, and Souttar, and showed a cinematograph film and four patients, three of whom had had meningiomas removed.

ULSTER MEDICAL SOCIETY.

AT the opening meeting of the session, held in Belfast on Oct. 15th, Mr. S. T. IRWIN gave a presidential address on

Enlargement of the Mesenteric Lymph Glands.

He confined his attention to such enlargement as may be found at operation where there is no obvious naked-eye disease of the abdominal contents, thus excluding such conditions as Hodgkin's disease, carcinoma, lymphadenitis secondary to ulceration of the gut, and tuberculous lymphadenitis of the type which produces a palpable swelling or leads to obvious acute or chronic intestinal obstruction.

The recognition of enlarged lymph glands as a definite clinical entity, said Mr. Irwin, we owe to Edred Corner, who wrote on this subject in 1905, but as late as 1918, when H. W. Carson published his now classical description, many people remained doubtful. At first all the enlargements were regarded as tuberculous, but in 1922 Heusser, after detailed examination of 40 specimens obtained at operation, concluded that many were non-tuberculous.

In normal health the mesenteric glands may be as large as a hazel-nut or almond, but anything much larger than this must be considered pathological. Normally the largest glands are the most proximal and a reversal of this order is in itself evidence of some pathological lesion. In the ileocæcal area this reversal is the rule in acute lymphadenitis, and is also found in many cases of ileocæcal intussusception where the glands may be so large as to resemble a bunch of purple grapes, the proximal glands in these cases approaching normal size. In the superior mesenteric area, on the contrary, the largest glands are usually found at the root of the mesentery, though on occasion even here reversal of the normal may be found. As regards naked-eye appearance and consistence three types may be mentioned. (*a*) The glands may be enlarged, red, soft, fleshy on section, and flattened. Such glands tend to be matted together. They are found in acute lymphadenitis, especially when this occurs in the ileocæcal area. (*b*) They may be firm, hard, fibrous on section, and discrete, suggestive of a chronic inflammation. These are found at operation mainly in the mesenteric area and in the small omentum around the cœliac axis. (*c*) They may show definite evidence of tubercle, such as caseation, calcification, and even c[illegible] formation.

Other changes found in the abdomen in cases showing gross glandular enlargement may be abnormal irritability of the gut, spasm of the pylorus, temporary œdema of the gut, and irritability of the abdominal wall. That many of the cases are due to tuberculous infection there is much evidence to show.

CLINICAL ASPECTS.

The symptomatology of these cases is often diffuse and the operative findings manifold, but the cases may be classified under three heads.

1. Acute lymphadenitis of the ileocæcal group seen during the acute stage. These are of tuberculous origin of the bovine type. Infection occurs in early life by the swallowing of bacilli either in milk or infected foods. Sometimes the symptoms suggest that the disease is a primary infection, and this type closely resembles acute appendicitis. There is, indeed, no single symptom of appendicitis which may not be simulated by acute lymphadenitis, but it is worth while to make the distinction, for operation has a definite mortality and, as a result of operation, the disease may be spread to neighbouring organs. Diagnosis can often be made reasonably certain by careful consideration of previous history, the nature of the onset of symptoms and their progress, the type and situation of the initial pain, the temperature at the onset, the condition of superficial lymph glands, and careful abdominal examination. In these cases operation is unnecessary and therefore undesirable.

2. Chronic lymphadenitis following an acute attack seen weeks, months, or years after such attack. In many cases there is no definite history of the primary attack. The cause is again tubercle. The symptoms and signs will depend to some extent on the interval of time from the acute attack. The glands may be uniformly enlarged, soft and fleshy, but usually caseation or calcification will be found in some of the glands. The ileocæcal group alone may be affected or the enlargement may affect the mesenteric and cœliac groups as well. Here again diagnosis is difficult. Symptoms may be wholly referable to the upper abdomen—acidity, nausea, pain of the duodenal type, loss of appetite, and constipation. Patients are easily exhausted by overwork or confinement. They are frequently tender in the right iliac fossa at a point above and medial to McBurney's point. Test-meal and radiological examinations are often misleading—the former may indicate delay in emptying with normal or hyperacid curve, and the latter not seldom shows marked delay in the stomach with hypermotility of the head of the meal. Operation may be necessary to clear up the diagnosis. It will, however, indicate the lines of subsequent treatment, especially freedom from fatigue and confinement and a plentiful and nutritious diet.

3. The third group is still less clearly defined. The glands most often affected are those in the mesenteric and cœliac areas. They are hard, fibrotic, and discrete. They preserve normal relationship of size to position. On section they show no definite evidence of tubercle and yet they closely resemble the enlargement which is found when an obvious infection by tubercle has occurred at the ileocæcal angle. The alternative views that they are due to simple infections from a chronic appendix, abscesses in connexion with teeth and tonsils, influenza, rheumatism, &c., are merely matters of surmise. It is also held that as sections of the glands show merely a simple hyperplasia they point to a hypertrophy due to some excessive demand for increased functional activity such as might be due to the unnatural diet of modern man. The symptoms are vague in the extreme. The patients have their appendices removed by one surgeon, their gall-bladders by another. They may have had a gastro-enterostomy done in one hospital, to be undone later in another because to their former symptoms was added the vomiting of bile. They are edentulous and have had their tonsils successfully enucleated.

These patients form an appreciable proportion of chronic abdominal problems occurring in practice. Out of 375 chronic abdominal cases submitted to operation there were: appendicitis, 82; duodenal ulcer, 240; enlarged mesenteric glands, 53.

CARCINOMA OF THE BREAST.—The third sentence of Mr. Philip Hawe's remarks reported on p. 1026 of our last issue should read: "Of 38 early cases, *excluding* nine cases not traced, 29 were alive five to ten years after operation; of 74 late cases, *excluding* ten cases not traced, 24 patients were alive five to ten years after operation."

REPORTS AND ANALYSES

ARKINA NATURAL MINERAL WATER

FROM YVERDON-LES-BAINS, SWITZERLAND.

(ARKINA EXPORT CO., 72, DUNSTER HOUSE, MARK-LANE, E.C.3.)

THE water is tasteless, colourless, odourless. It is slightly alkaline, and its use is advised in cases of arthritis, gout, rheumatism, and similar conditions. Analysis showed the following composition in grammes per litre:—

Chlorine (Cl) ..	0·010	Magnesia (MgO) ..	0·058
Sulphuric acid (SO_3) ..	0·274	Iron and alumina ..	0·008
Soda (Na_2O)	0·013	Silica (SiO_2)	Nil.
Potash (K_2O) ..	0·035	Total solids after ignition	0·855
Lime (CaO)	0·309		

These results may be expressed in combination as follows (again in grammes per litre):—

Sodium chloride ..	0·009	Calcium bicarbonate	0·337
Sodium bicarbonate ..	0·022	Magnesium bicarbonate	0·210
Potassium chloride ..	0·010	Calcium sulphate ..	0·467
Potassium bicarbonate	0·001	Iron and alumina ..	0·008

The main constituents of this water are sulphate of lime and bicarbonates of lime and magnesia. Its slight alkalinity (pH 8 to 8·5) may be regarded as a favourable indication. No organic matter was found. The claim is made that this water is radio-active.

FRESH VITACREAM.

(VITACREAM, LTD., 48, MARK-LANE, LONDON, E.C.3.)

This preparation closely resembles ordinary cream in appearance, texture, and flavour. It claims to be made from Grade "A" milk and pea-nut oil. The carton contains a little over 1¼ lb. and is sold at 1s. 6d. When analysed the following results were obtained:

Total solids	49·8	per cent.
Water	50·2	„ „
The solids consist of:—		
(1) Total fat	43·46	„ „
(2) Protein (N × 6·39) ..	2·54	„ „
(3) Mineral constituents ..	0·40	„ „
(4) Lactose	2·80	„ „

When tested for preservatives, boric acid and formalin were found to be absent.

The preparation is an interesting one owing to its close resemblance to ordinary cream. Pea-nut oil is a perfectly wholesome fat, and enters into the composition of many foodstuffs. The cheapness of this synthetic cream should render it attractive.

REVIEWS AND NOTICES OF BOOKS

Rheumatic Infection in Childhood.

By LEONARD FINDLAY, M.D., D.Sc., M.R.C.P., Physician, East London Hospital for Children; late Professor of Pædiatrics, Glasgow University. London: Edward Arnold and Co. 1931. Pp. 187. 10*s.* 6*d.*

IN this book Dr. Leonard Findlay presents the results of the exhaustive investigation into rheumatism carried out in Glasgow during the last decade, and discusses the deductions which may be drawn from them. His views on a subject on which he is an experienced authority cannot fail to carry great weight, and are effectively expressed in a lucid and logical style. Objective manifestations alone have been considered. The rheumatic infection has been taken as including arthritis, chorea, carditis, and nodules; little or no reference is made to subjective symptoms such as "growing pains." The author brings statistical evidence to bear on many traditional views; he has little respect for some medical myths, both ancient and modern, such as that of the child who was frightened into chorea, or the elusive conception of a "pre-rheumatic state." He has no belief in the existence of a dietetic factor in the ætiology of rheumatism. The principal rheumatic manifestations are discussed in successive chapters, and statistics bearing on their incidence, the combinations in which they occur, and the ultimate result of treatment are presented in numerous tables. Dr. Findlay is fully aware of the difficulties which may arise in interpreting these figures, and in reconciling statistics obtained from post-mortems with the results of clinical observation, as in the question of the incidence of aortic disease (p. 74). He is unable to testify to the existence of the miliary nodule of Coates and Thomas. The line of treatment recommended is, in the author's own words, heroic. All cases, including those of chorea, are kept in bed for at least three months, with continuous salicylate medication, as a prophylactic against carditis. Salicylate is given in doses of grs. 120 or more in the day. The importance of combining this drug with alkali, which has been recently called in question by some authors, is strongly upheld.

This is a work of considerable importance, which will claim for itself a prominent place in the literature of the subject. It should be read by all who are interested in pædiatrics, or are engaged in public health work in schools and clinics.

Infection in the Rheumatic State.

The Factor of Infection in the Rheumatic State, the so-called Rheumatic Fever. By ALVIN F. COBURN, M.D., Resident Physician of the Presbyterian Hospital in the City of New York. London: Baillière, Tindall and Cox. 1931. Pp. 288. 27*s.*

AT first glance this book does not attract. It is plentifully sprinkled with photographs and charts and even with coloured prints, but these do not carry conviction. Further study reveals that carefully controlled investigations are recorded on certain aspects of rheumatism. Large numbers of cases have been used for the investigations and more important still the reactions of non-rheumatic controls have been compared side by side with those of rheumatic subjects. The chief points studied have been (*a*) the part played by climate in the ætiology of rheumatism, (*b*) the importance of upper respiratory tract diseases as a source of infection and particularly the importance of the hæmolytic streptococcus. Other facts have emerged during the investigations as, for instance, the definite relationship between scarlet fever and rheumatic heart disease, and the undoubted existence of an individual idiosyncrasy or inherent susceptibility on the part of the host with variations of tissue response with age, and with fluctuations of state within the individual. The reactions of human skin to injections of bacterial nucleoproteins are discussed, and the possibility of an association between active rheumatic disease and recent upper respiratory infection with *Streptococcus hæmolyticus.* Many illustrative cases are given, and it seems clear from reading the histories that the manifestations of acute rheumatism as seen in the Presbyterian Hospital in New York are much more violent and protean than those seen here in London of recent years. Rheumatic fever as described in the text-books is comparatively rarely seen in these days, when the more insidious forms of rheumatism, the so-called subacute rheumatism, is much more common. The frequency of epistaxis as a symptom is emphasised and many forms of skin rashes are described; in England these manifestations are relatively uncommon. It is possibly this striking difference in the clinical picture of the disease which accounts for the fact that some of the coloured prints are not convincing to British readers, but to scientific workers anywhere the frontispiece would surely seem inappropriate.

The Nervous System.

An Elementary Handbook of the Anatomy and Physiology of the Nervous System. New edition. By JAMES DUNLOP LICKLEY, M.D. With 117 illustrations. London: Longmans Green and Co., Ltd. 1931. Pp. 144. 10*s.* 6*d.*

WE reviewed the first edition of this book as long ago as 1912; the new edition differs in a number of material respects from the original. It gives a representation on elementary lines of the chief morphological features of the neuraxis, macro- and microscopical, together with an account of the anatomy and physiology of the sense-organs. Many of the diagrams and figures show improvement on those formerly utilised, but some still need revision. It is regrettable that those of the cerebral cortex (p. 71) have not been replaced, for neither of them corresponds to the author's textual description of five cortical layers; alternatively, the latter should be modified. In Figs. 76 and 77 the allocation of "psychic" functions to portions of the cortex indicated by dots on the diagrams can scarcely fail to suggest to the student the misleading idea that there are anatomical "centres" for these functions; besides, what is sensation if not a psychic function? Yet it is here supposedly represented apart from "psychic portions" of the area. Dr. Lickley follows the teaching of Sir Henry Head as regards protopathic and epicritic sensory systems, although he mentions other possibilities in his text. In some respects, indeed, the author's textual descriptions are more accurate, in the sense of indicating other views and theories, than might be anticipated by references to the diagrams alone. The book, taken as a whole, fulfills its purpose adequately.

THE SCHOOL MEDICAL OFFICER'S WORK.

TIME was when the study of idiosyncrasies and disease processes was the preserve of consultants and pathologists. It was Sir JAMES MACKENZIE who discovered how much valuable research was open to the general practitioner with his unique opportunities for clear and continued observation and his knowledge of the family history and daily life of the patients under his care. This is true in equal or greater degree of the school medical service, whose officers have the advantage of seeing large numbers of children so that no difficulty can arise in finding control groups of normal subjects. It may come as a surprise to those who have not studied the annual reports of the Chief Medical Officer of the Board of Education to learn how many qualified men and women are now associated with school medical work in some form or other. Although the number of senior officers whose work is confined to schools may be small—only one county and 11 county boroughs maintain a whole-time school medical officer—yet there are 305 school medical officers who give part time to other branches of medical work, 984 assistant school medical officers, 1722 additional practitioners employed on specialist duties, bringing the total strength of medical and dental staff up to the figure of 3023. There are in addition 5485 nurses working whole or part time for the school-children. Ten years ago, Sir GEORGE NEWMAN says in his latest report,[1] the school doctor had two complaints: first, that the routine inspection of endless children was monotonous and even soul-destroying; and second, that it was a blind-alley employment. The man who now makes these complaints knows often enough, he adds, that if valid these disabilities are his own fault. The monotony disappears when the wider scope appears, and the hope of a future lies in the expansion of the opportunity, the increased ramifications, and association with a more and more unified public health service.

A faithful picture of the work done in the school medical service may be gained from a careful study of the reports of which regular summaries have appeared for many years in our own columns. In one such report a county officer pointed out that, while the best work for school-children was being done by medical officers of experience, after a term of years some of the most efficient of these officers became weary of routine work and left the service for other branches of medicine, notably general practice. Their interest would undoubtedly be retained if there were a widening range of opportunities and interests, and, above all, encouragement to undertake original inquiries and research. The present report contains on pages 96 to 98 a list of special inquiries and reports made during the year 1930, few of which unfortunately see the light of day. Doubtless some proportion of this work is threshing over old stuff, but some of it reveals new and suggestive grain which should be winnowed for the benefit of the service as a whole. Work of this kind is of value in a variety of ways. It tends to keep up the standard of local school health; it has its application to school medicine as a whole; more than that, it throws light on the normal development of the young of the human race, knowledge of which is a necessary condition for any other branch of medical work. In the schools can be studied the manifestations which are on the borderline between physiological variation and pathology; a line whose determination is of no mere theoretical interest, for many children are condemned to unnecessary invalidism because in the absence of these data the family doctor is obliged to inculcate a blind policy of safety first. In the schools the medical officer sees the earliest manifestations of disease such as those of mild subacute rheumatism; he can study deviations from the normal, differentiating them into those due to type, idiosyncrasy, and actual disease. There is some falling off in the present year in the variety of the inquiries, which may be explained by the extra work thrown upon the health service by the transfer of the functions of the poor-law—good in the long run for the additional scope—and by the obligation under the new Act to survey the housing needs of the areas. But there should be no relaxation in the work of the service until the entrants to school become, as with few exceptions they might well be, normal healthy children and remain so throughout school life; for the service has long ago outlived the original reason for its introduction—namely, to fit the children to receive benefit from the education provided out of public money—and has set itself to ensure that our educational system shall build the whole body of children strong and healthy.

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MILK IN CARTONS.

AT first sight it does not seem to matter whether milk is distributed in cardboard containers or in glass; the main point is that it should be clean and plentiful. Yet in fact the paper carton has much to recommend it besides its amusing novelty. First and most obvious is the sound principle that any food receptacle should be used once and then thrown away. True, we do not apply this maxim to our pots and pans and plates, but neither do we put these household gods outside the front door each morning to take the chances of the streets. Though science may collect the bottles daily and sterilise them to its satisfaction the voice of sentiment is still unquiet; and sentiment very often directs us towards the ideal of hygiene. So much for that: if milk comes to the door in a carton it comes in a clean container daily and the old one is never used again except to light the kitchen fire. But the real advantage of the paper wrapping lies in ease of transport. Bottles are so heavy and brittle that it proves expensive to send them over long distances; hence they are usually distributed over comparatively small areas, and the milk is not put in its containers until it reaches these areas. The milk of London, for instance, is not, in practice, pasteurised and sealed in distant counties where it is produced, but comes in cans to the metropolitan centres whence it is distributed. Since double pasteurisation is not permissible, it makes this journey in the raw state, and in hot weather its bacterial count must rise considerably before it arrives. The alternative plan was demonstrated to London medical officers of health last week when they visited the new Bladen Dairies near Dorchester (see p. 1108). Here the milk is collected from surrounding farms, immediately pasteurised, cooled, and packed in cartons. These cartons fit neatly into boxes made of corrugated double cardboard to keep them cool and are on sale in London 24 hours after the cow was milked.

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[1] Health of the School Child. Annual Report of the Chief Medical Officer of the Board of Education for the Year 1930. H.M. Stat. Office. Pp. 125. 2s.

The relative advantages of pasteurisation just after milking and pasteurisation just before delivery are disputable, and the former method clearly demands high technical efficiency if the milk is to be equally free from active organisms when it reaches the consumer. With either, however, it is essential to maintain a high standard of cleanliness in the farms, and here there seems to be some advantage in placing new organisations in the country rather than the town. The Bladen Dairies at present gather milk from about 90 farms within a radius of 20 miles. These farms compete with one another to receive the higher payment per gallon which is made to those whose milk does best in the monthly tests of cleanliness. Lists of the successful are published in the local newspaper, and in course of time, while the sphere of operations will doubtless enlarge, the individual farmer's pride is likely to merge in local pride. The new organisation should thus become the focus of a local patriotism affecting the whole business of cattle-rearing and milk production. Moreover, it should help to concentrate the farmer's attention on his proper job. One of the weaknesses of English agriculture is that the producer, who is often trying to sell wheat, pigs, milk, beef, mutton, wool, eggs, and many other products, cannot possibly study his markets adequately. Difficulties of packing, transport, and even public taste are always taking his mind away from his primary task of production, and the countryside needs centres which will receive the various forms of produce, handle them in large quantities, and distribute them in the quarters where they are needed in the form in which they will be acceptable. An organisation like Bladen Dairies is making a beginning with this task of rationalising the countryside, but if it could enlarge its scope to comprise the grading and marketing of eggs and fruit, for example, it would have even greater possibilities for improvement of the national life.

It is a far cry from the paper carton to decentralisation of pasteurising plant, and further still to the revival of the English dairy industry. The new method of packing has been tried before and abandoned, and we cannot yet say whether more efficient manufacture and design will bring it success this time. The problem is ultimately one of costs, but as has been seen, it has interesting medical implications. What remains to be mentioned is the possible influence of the carton in popularising milk as a food. The new Dorset undertaking is trying the experiment of selling its milk in London through grocers instead of the ordinary dairies. Its sponsors anticipate in this way making it easy for the casual shopper to include a carton or two of milk among the other purchases which go into her basket. They hope that the presence of real milk on the counter will discourage her from buying tinned or dried milks. And by issuing small cartons, containing one-third of a pint, at a penny, they believe they will encourage the consumption of milk by schoolchildren. Certainly the child's ration, at this low price, should be attractive to many parents, though it seems doubtful whether it will show any profit to the producers. For the rest, time alone will prove whether the sale of milk by all sorts of retailers is to be justified by results, but from the standpoint of public health the proposal has much to recommend it. A condition we would make is that the carton must be dated.

PROF. NUTTALL'S RETIREMENT.

THE retirement of Prof. G. H. F. Nuttall from the Quick Chair of Biology at Cambridge, which he held from its foundation 25 years ago, has given his many friends and admirers the opportunity of offering him some token of their esteem. With this object a representative committee has been formed which has decided to collect a fund in order that his portrait may be painted by some eminent artist; a letter appealing for subscriptions to this fund will be found on p. 1101. No doubt the response will be large and immediate, for the services of Prof. Nuttall to preventive medicine are as eminent as his contributions to general biology. In 1901 he founded the *Journal of Hygiene*, and seven years later *Parasitology;* both these journals he has edited from their commencement. Whilst holding the chair of biology, he obtained funds to found the Molteno Institute of Parasitology at Cambridge, and has trained numerous research workers. In 1904 he was mainly responsible for instituting a diploma in tropical medicine and hygiene at Cambridge. His earlier contributions to medicine include the first demonstration (in 1886) of the bactericidal properties of blood-serum; the discovery (in 1892), jointly with Welch, of the gas gangrene bacillus; and especially his classical studies on precipitins (1901–04). His later activities have been directed towards the rôle of blood-sucking insects and other arthropods in the transmission of disease. The study of the structure and biology of mosquitoes, lice, bugs, and ticks, which this has involved, has resulted in a series of noble monographs. Nuttall's studies of endemic malaria in Great Britain, including the distribution of *Anopheles maculipennis*, were of great importance during the war when many cases of malaria were being introduced by troops returning from the Mediterranean and other centres of infection. Nor should we overlook his participation in the discovery of the specific action of trypan-blue on piroplasmosis.

ANNOTATIONS

THE MINISTER OF HEALTH.

Sir Edward Hilton Young, who has become Minister of Health with a seat in the Cabinet, has been closely associated with medicine as Crown nominee since 1926 on the General Medical Council, and for the last three years a member of its executive committee. Although the Medical Act of 1858 requires only the representatives on the Council of the medical corporations to be qualified for registration under the Act, up to the time of Sir Hilton's appointment no layman had actually sat on the Council. His name was put forward by the Privy Council as a result of strong feeling in Parliament that there should be some member of the Council to "represent the public," as this feeling was vividly if a little loosely expressed. Sir Hilton is a man of law and a man of letters who has served his country in many capacities, of which the most heroic was on the *Vindictive* at Zeebrugge Mole in 1918, when he was severely wounded. He has been on financial missions to India, Poland, and Iraq, three times delegate to the Assembly of the League of Nations, and chairman of the Royal Commission on the constitution of London University. Formerly Liberal M.P. for Norwich, he has since 1929 represented the Sevenoaks division of Kent as a Conservative. No appointment could have been more acceptable to the medical profession.

OVARIAN HÆMORRHAGE.

HÆMORRHAGE from an ovarian blood cyst is probably commoner than is generally supposed. Of late years in this country R. K. Wilson[1] has reported six cases at the London Hospital, and D. Levi[2] three at St. Mary's, while on p. 1068 of our present issue Mr. Hodgson Boggon and Mr. A. J. Wrigley describe 13 seen at St. Thomas's. These and other writers are all impressed by the difficulty of distinguishing the ovarian hæmorrhage from acute appendicitis. Evidently diagnosis is usually impossible before operation, and since the only other condition likely to give the same symptoms is an ectopic pregnancy, it is well to be on the safe side and operate if in doubt. Moreover, although this kind of bleeding may clear up without intervention it is sometimes quite copious (F. B. Block[3]). Its origin has of course been much disputed, and the suggestion has been made that it represents an exaggeration of the normal process of rupture of the Graafian follicle. But several investigators, notably Wilfred Shaw,[4] have shown that rupture of the follicle and extrusion of the ovum is not accompanied by hæmorrhage into the central cavity, and that the corpus luteum is therefore in its earliest stages free from blood. During the stage of vascularisation, as the corpus luteum develops, a minute amount of bleeding normally does take place, to be organised and absorbed by the rapidly growing cells of the membrana granulosa, and again during the stage of involution there may be further slight hæmorrhage. The reason why these minute physiological hæmorrhages during reach alarming proportions has been studi tely see t. others by S. A. Wolfe[5] who has ex roportion of thi aries removed at operation, all but some of it rev containing hæmatomas of various sizes. He notes that in six cases the hæmorrhage occurred during the development stage and in 26 during involution, but he thinks that some of the 26 probably started during development of the lutein body and that further bleeding took place during retrogression. General hyperæmia of the ovary is, he considers, the underlying feature of this excessive hæmorrhage, and he attributes it to associated pelvic disorders. Thus he found salpingitis in 27 out of his 32 cases and fibroids in three, and he supposes "static factors"—i.e., retroversion of the uterus and prolapse of the ovaries—in the remaining two. These findings are not borne out by other observers; Wilson's cases, for instance, were in perfectly healthy young women with no suggestion of pelvic inflammation. It seems likely therefore that while this condition may coexist with pelvic inflammation, we must look further for the underlying cause. Perhaps the most likely explanation of the hæmorrhages is that they are the result of sudden outbursts of activity of the ovary—perhaps under the influence of the pituitary gland. They are reminiscent of the hæmorrhagic follicles produced in animals by injection of the urine of pregnancy, in the Zondek-Aschheim test.

CET, 1928, i., 1221.
Jour., 1929, ii., 641.
[1] Health of the School Chi nd Gyn., 1930, xix., 102.
Medical Officer of the Board mp., 1927, xxxiv., 300 and 469.
H.M. Stat. Office. Pp. 125. 2s. Gyn., 1928, xv., 513.

THE BLOOD-SUGAR IN CHILDHOOD.

THOUGH the blood-sugar of adults has been closely studied in a great number of conditions, our knowledge of the corresponding physiological and pathological variations in infancy and childhood is still far from complete. Since metabolism in early life is known to differ in many respects from metabolism in the adult, it is clearly desirable that information about the normal carbohydrate mechanism in different age-groups should be collected so that we may assess the significance of our findings in disease. E. Svengaard has therefore made a valuable contribution in her extensive study[1] of the blood-sugar, both in the fasting state and after glucose administration, in groups of children from 4 days to 13 years of age. She confirms the findings of several previous observers that the average fasting blood-sugar in early infancy is slightly lower (circa 0·08 per cent.) than in later childhood, when it approaches more closely to the adult figure, and she shows by repeated estimation in the same individual that variations in fasting blood-sugar tend to appear as broad waves rather than as sudden changes. She records a relatively slight rise in blood-sugar following the administration of 2 g. glucose per kg. in the new-born period, whereas in the first year of life values above 0·200 per cent. (with a duration of hyperglycæmia of under two and a half hours) are frequent. Four cretins investigated showed a somewhat slow rise in the blood-sugar curve before treatment, but marked hyperglycæmia after administration of thyroid. The findings of most interest from the pathological standpoint, however, are those in the cœliac state. A. B. McLean and R. C. Sullivan[2] and more recently O. Macrae and N. Morris[3] have described a flat type of curve in this disease, which, the latter authors show, contrasts with the normal rise in blood-sugar after a glucose test-meal seen in non-cœliac steatorrhœa. They favour the view that the cœliac curve is due to defective absorption of glucose. Svengaard confirms these findings, both with regard to the cœliac and non-cœliac conditions. It appears that the blood-sugar curve may therefore prove useful in confirming a diagnosis of cœliac disease, though further estimations are clearly needed both in the active and latent periods of the disease.

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[1] Acta Pædiatrica, 1931, vol. xii., suppl. iv., p. 245, Copenhagen.
[2] Amer. Jour. Dis. Child., 1929, xxxviii., 16.
[3] Arch. Dis. Childhood, 1931, vi., 75.

THE BROAD TAPEWORM IN NORTH AMERICA.

THE spread of *Diphyllobothrium latum* in North America has exercised a good deal of attention during the last three years.[1] [2] As reported by our correspondent in the United States, in THE LANCET of Sept. 12th, a further contribution to our knowledge has now been made by Thomas B. Magath and Hiram E. Essex.[3] Examination of Minnesota waters has shown that the Mississippi watershed is free from infected fish, but that these are present in certain lakes which drain either into Lake Superior or through Lake Winnipeg into Hudson Bay. As to the likelihood of infection being carried down waterways, it has been found that development from the tapeworm egg will not occur at 4° C., and that this is the temperature which obtains at the bottom of the Great Lakes throughout the year. Lake Winnipeg, however, is in a state of continual turnover, its temperature is at most times suitable for larval development, it receives a large amount of sewage, and its fish are more heavily infected that those from the Great Lakes, especially at its head or southern end. The free-living coracidium lives for 12 hours only after escaping from the egg, even in sheltered laboratory conditions, but as soon as it enters the arthropod intermediate host larval development proceeds and continues for at least two weeks. There is, then, opportunity for considerable dissemination of these infected creatures whether by passive transportation or active migration, and it should be noted that these writers have added *Diaptomus sicilis* and *D. siciloides* to the arthropod hosts in which the coracidium can develop. As regards animals other than man which harbour the adult tapeworm, Magath and Essex have in the press evidence that while 80 per cent. of eggs from man develop active coracidia, only 1·5 per cent. of eggs from the dog do so. They accordingly conclude that man is the essential source of infection for man, and sewage the means by which that infection begins its complicated chain. This, however, does not necessarily follow. For example, dealing with malaria, E. Walch and B. Walch-Sorgdrager[4] showed that although in Sumatra the mosquito *Anopheles ludlowi* was about 12 times more often infected with these parasites in nature than was *A. sinensis*, yet since the latter outnumbered the former about 120 times, it was about ten times more dangerous to man locally than *A. ludlowi*. Similarly, since Vergeer[2] has found as many as 19 specimens of this tapeworm in one dog, it is unwise to assume than the part played by the dog in spreading infection to man is necessarily insignificant. But while this point remains to be settled, it is clear that adequate treatment of sewage must be held a prime factor in the prevention of dissemination. The complete avoidance of the eating of improperly cooked fish is a simple and certain personal preventive; while if public measures be demanded, it is pointed out that the proper freezing of fish imported from Canada to the United States will prove effective, since a temperature of $-9°$ C. maintained for 48 hours kills all the plerocercoids in their flesh, and so prevents this, the infective stage, from reaching and parasitising man. These writers cannot agree then with Vergeer's suggestion that there is need for an embargo on the importation of susceptible fish into the United States from Canada, since by freezing these can be made quite safe. It is further clear that their investigations have made it possible, if not probable, that infection in Canadian fish is itself to some extent water-borne from the United States, so that the imposition of such an embargo would prove particularly difficult to justify.

INTOLERANCE IN PSYCHIATRY.

DR. Bernard Hart's appeal for tolerance and coöperation between all who are attacking the problems of psychiatry strikes a welcome note. Few things in medicine to-day are more distressing than the internecine strife of units that ought to be advancing together against the gravest health problem of our time. Nations are beginning to realise that the preservation of life is not the one thing of importance to a people; what really matters is the kind of life that is preserved. A dozen living persons suffering from mental disorder and inability to adapt to their environment may cause a community far more damage than the loss of a hundred lives from cancer or tuberculosis. Mental disorder of every kind, major and minor, is on the increase, and there are a dozen promising lines of approach to its prevention and cure. These methods range from the estimation of the blood cholesterol on the one hand to an intimate personal relationship on the other hand. It is impossible at this stage to say which is ultimately going to prove the most successful. It is extremely improbable that any one method will succeed in every case or that any one method alone, without the others, is to be trusted for any case. Yet there seems to be in this branch of medicine a peculiar difficulty in understanding the principles or even in admitting the claims of any practitioner belonging to a different group. Greater extremes of intolerance are met here than in any other branch of medicine. The mental hospital superintendent will point mockingly to the "results" of psycho-analysis that he has received into his wards, and the psycho-analyst will sneer at the "archaic" methods employed in mental hospitals. To say that these are extreme instances is no mitigation; they ought not to be possible at all in the face of the grave problem that superintendent and psycho-analyst alike are attempting to elucidate. The two should instead be making every effort to meet and talk over the patient whom they have in common with a frank readiness to confess mistakes and failures which ought to be no disgrace at this early stage of the development of psychological medicine. There is one point of agreement between these two schools, and that is their united condemnation of those who approach the problem from yet a third point of view, the point of view which has been named "mystical" as a term of reproach, though the term might well be accepted as one of reverent admiration. Here again Dr. Hart has said something that greatly needed saying. He has pointed out the essential mysticism in the modern developments of that which has always seemed its antithesis—the higher mathematics, and that the much-vaunted methods of science are after all only one approach to the knowledge of mankind. What, after all, is science? It is the application of one part of man to the problems of the universe: the results which he is able to obtain by using his intellect. In so far as it deals with the part of the universe that is mechanical and mechanistic, this method has proved extraordinarily illuminating and is likely to go much further. But every man knows that his own experiences include much that is not intellectual, and every physicist is beginning to suspect that the universe does likewise. Is it probable, then, that the part can comprehend the whole? Is it likely that problems so far-reaching and so deep as those with which psychiatry is concerned can be solved by anything but a concerted attack by every method known to man?

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[1] See THE LANCET, 1928, ii., 337.

[2] Ibid., 1929, ii., 780.

[3] Jour. Prev. Med., 1931, v., 227.

[4] Meded. Burgerlijk Geneesk. Dienst in Nederl.-Indië, 1921, Pt. 2, p. 2.

EARLY TUBERCULOSIS INFECTION A NORWEGIAN EXPERIENCE.

How and where are children infected with tuberculosis? In seeking answers to these two questions, Dr. H. J. Ustvedt[1] has made a special study in Trondhjem, which, with its limited population of about 55,000, and its well organised public health service, provided a comparatively transparent state of affairs, favouring the discovery of sources of infection. In the summer of 1930 some 5000 school-children were tested with tuberculin—by the Pirquet test as a rule. Previous notifications of tuberculosis showed that 521 children came from homes in which one or more cases of tuberculosis had existed during their life-time. But only 52·5 per cent. of these children gave a positive reaction. A re-examination of 100 negative reactors in this category with Mantoux's tuberculin test yielded only seven positive reactors. Even among the children who had been in contact with cases of fatal tuberculosis, and who had therefore presumably been exposed to massive infection, only 63 per cent. gave a positive reaction. Had the negative reactors escaped infection by virtue of otherwise healthy conditions of life and care taken to prevent infection? The explanation suggested in this question is unconvincing, seeing that in nearly all these cases the children lived under miserable conditions, in large communal barracks, with eight to ten persons living in each room. In each of 150 tuberculous families there were two or more school-children. In 46 of them all the children were negative reactors, and among the 104 families in each of which there was at least one child giving a positive reaction, there were only 50 in which all the children gave a positive reaction. In other words, in 54 homes there were positive and negative reacting children, herded together, all more or less equally exposed to home infection. After discussing various explanations of this phenomenon, Dr. Ustvedt concludes that the constitutional factor plays an important part, not only in the evolution of tuberculosis once acquired, but even in the acquiring of the primary infection. As to his second question, he was able to trace the origin of 1116 positive reactions in only 24 per cent. to infection in the children's homes. Had the remaining 76 per cent. been exposed to infection in the same house, though not in the home itself? A comparison was made between 1900 children coming from houses in which from one to four cases of tuberculosis had been notified, with the same number of children coming from houses in which no case of tuberculosis had been notified. The percentage of positive reactors was 22·5 in the former category, 17·5 in the latter—a very small difference. This percentage did, however, rise to 29·5 per cent. in the case of the houses in which five or more cases of tuberculosis had been notified. Even so, it would seem from Dr. Ustvedt's investigations that most school-children, living in a town like Trondhjem, acquire their tuberculous infections outside the home and outside the house in which they live. And this was apparently true even of the youngest school-children.

THE TITLE OF "DENTAL SURGEON."

THE Court of Appeal on Oct. 29th confirmed Mr. Justice Farwell's decision (discussed in THE LANCET on August 8th, at p. 302) that a registered dentist who has neither degree nor diploma is not entitled to use the title of "dental surgeon." The case was that of a practitioner admitted to the Dentists' Register under Section 3 (1) (*a*) of the 1921 Act by virtue of his previous practice. Section 4 of the Act allowed him to call himself "dentist" or "dental practitioner," but forbade him to use "any title or description reasonably calculated to suggest that he possesses any professional status or qualification other than a professional status or qualification which he in fact possesses." The British Dental Association contended that the description "dental surgeon" implies the possession of a degree, licence, or diploma. Mr. Justice Farwell, who heard the evidence of several witnesses, came to the conclusion that, though to many people the term "dental surgeon" had no particular significance, to many others it did imply the meaning for which the British Dental Association contended. In the circumstances the judge considered it was impossible to say that the use of the title "dental surgeon" would not reasonably suggest to a considerable number of the public that the defendant had some status or qualification which he did not in fact possess. In his confirmatory judgment the Master of the Rolls observes that the word "surgeon" expresses a distinct qualification, and the only issue is whether it suggests a qualification which the defendant does not possess. It was not necessary, said Lord Hanworth, to call the whole world to give evidence. "The question must be what the expression means to those instructed and educated with a knowledge of such matters." The Court of Appeal was satisfied that the use by the defendant of the expression "dental surgeon" was calculated to suggest the possession of a qualification not in fact possessed.

THE FUNCTIONS OF VITAMIN A.

THE position of vitamin A as an "anti-infective" factor has been considered in two recent leading articles (Oct. 10th and 24th), but deserves an additional note. L. C. Boynton and W. L. Bradford report[1] on the differing effect of intraperitoneal injections of a certain organism in rats on diets deficient in vitamin A or vitamin D and rats on diets containing the missing vitamin. The organism used was a bacillus of the *mucosus capsulatus* group, which had been recovered from suppurating lesions of the upper respiratory tract in other rats on a diet deficient in vitamin A. Each animal received only a single injection and the dose used was just less than the minimal lethal dose for a normal rat. Groups of rats were inoculated at the end of 4, 6, and 8 weeks on the deficient diet and it was found that the survival-rate was unaffected by the withholding of vitamin D, but markedly lowered by the withholding of vitamin A. H. C. A. Lassen[2] also has given a very full account of somewhat similar work in which rats on diets deficient in vitamins A, B (vitamin B complex), or D were orally infected with organisms of the paratyphoid group. Marked decrease of resistance was only found in those on the diet deficient in vitamin A. Though it seems improbable that there is a question here of the breakdown of any immunity mechanism other than that of the mucous membrane cells themselves, yet Lassen does adduce some evidence that it is not in the gut mucosa that the lowered resistance lies. For instance, it could not be demonstrated that the organisms passed the gut wall more rapidly in A-deficient rats than in normal ones, nor that infection could be secured with a smaller dose of the organism. Some evidence was also obtained that in the deficient animals the agglutinins were reduced, though the power of vaccination to evoke immunity was not. We have as yet therefore but little reason to suppose that the breakdown in immunity, which is associated with vitamin A deficiency, is due to any cause other than damage to the epithelial cells. One very interesting point is, however, corroborated by Boynton and Bradford. They found that a lowered survival-rate could already be demonstrated in rats which had only been four weeks on the diet deficient in vitamin A, although at that time the animals' reserves of vitamin A were by no means used up and the creatures were still growing well and apparently enjoying good health. This observation affords additional evidence that it is possible for the rat—and why not for the human organism?—to exist in a dangerous state of latent deficiency of vitamin A of which there is no sign at all except lowered resistance to mucous membrane infection. When we read that among 4100 patients attending an ophthalmological department of a hospital in the north of England during one year, 17 cases of xerophthalmia or night-blindness were seen (J. C. Spence[3]), it gives us serious food for thought. For on analogy with the rat, behind those 17 cases of overt deficiency would stand an unknown further proportion of cases, whose only symptom was their low resistance.

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[1] Norsk Magasin for Laegevidenskaben, July, 1931.

[1] Jour. of Nutrit., 1931, iv., 323.

An attempt to use intensive therapy with vitamin A to prevent the spread of respiratory infection (common cold) among infants under two years of age has been made in a Canadian hospital, without apparent success, by H. P. Wright, J. B. Frosst, F. Puchel, and M. R. Lawrence.[4] The control group of babies received a good supply of vitamin A, including cod-liver oil, so that it is quite possible that though no difference between the control and the treated group was obtained, none was to be expected. The incidence of common cold in both groups was considerable, and though with much less vitamin A, it might very likely have been higher, the vitamin therapy certainly produced nothing in the nature of a general protection.

THE CULT OF THE THERMOMETER.

At a recent inquest Dr. F. J. Waldo remarked that in his opinion all mothers in England should possess a clinical thermometer with which to take their children's temperature if necessary. He went on to say that cases of measles in young children frequently came before him in which bronchopneumonia was the cause of death and he believed that children with measles would be more likely to be put to bed and safeguarded from this complication if mothers had realised that the child was feverish. There is, we think, likely to be some difference of opinion about the use of the clinical thermometer in the home. A mother who is unobservant enough not to notice a change in her child's condition at the onset of an acute infection or of a complication occurring in the course of some other disorder is unlikely to be able to make proper use of a clinical thermometer. The taking of a child's temperature is not quite as simple as it might appear and whatever site is chosen presents certain difficulties and dangers. Even in a children's hospital accidents with thermometers occur. Apart from this difficulty, is it likely that the type of mother to which Dr. Waldo is referring would be able to read a thermometer if she possessed one? In forewarning mothers of the imminent measles epidemic would it not be better to issue some simple instructions, for example, about the feel of a child's skin when feverish or the rapid breathing of pneumonia, than to encourage the use of the thermometer? In the more educated classes the danger of too much use of the thermometer is real. Dr. Robert Hutchison, opening a discussion some years ago on the diagnosis of obscure pyrexia in children, remarked that in some cases the only way to clear up a persistently baffling elevation of temperature was to banish the thermometer from the house. With this many practitioners will be in hearty agreement. There is another danger—namely, that inasmuch as serious disorders of childhood may occur with a normal temperature the amateur use of the thermometer may lead to a situation of false security. Appendix abscess, intussusception, and rheumatic myocarditis are examples of danger where fever may be absent. On the whole then clinical experience is against encouraging the cult of the thermometer although an intelligent knowledge of its use is of value on occasion. A good working rule is to have a thermometer in the house but to keep it somewhere where it is difficult to find.

RADIUM UNITS AT L.C.C. HOSPITALS.

Treatment by means of radium is at present carried out mainly at Lambeth (general) hospital, the North-Western (fever) hospital, Hampstead, and Queen Mary's hospital for children, Carshalton. Lambeth has 512 milligrammes of radium and a deep X ray outfit, and the unit there is capable of carrying out the full range of radium work, although most of the cases of uterine cancer are treated at the North-Western which has 334 milligrammes of radium and no deep X ray outfit. Queen Mary's has 15 milligrammes of radium. At other L.C.C. hospitals radium treatment is carried out to a limited extent by means of needles, lent by the London hospital, and by radon seeds. The Central Public Health Committee states that there is no evidence of an unsatisfied demand for radium treatment in the Council's hospitals. The medical superintendents have experienced no difficulty in obtaining radium treatment for any patient requiring it. The patients treated at Lambeth hospital come mainly from areas south of the Thames and especially from the neighbourhood of the hospital. The voluntary hospitals in possession of considerable amounts of radium are mainly north of the river and their radium units are not all working to their full capacity. The radium at Lambeth is used approximately to maximum capacity, and its deep X ray outfit is adequate for present demands. The unit at the North-Western does not make the maximum use of its supply of radium and the (8) beds in the unit are occupied only to about 70 per cent. of capacity. The margin of possible increase, with the present number of beds, is small. A more important limitation is the lack of equipment for deep X ray therapy which in the committee's opinion should be remedied, although they consider it would be unwise to spend a large sum of money on this hospital unit which would be more appropriately placed in a general hospital. In view of the present economic situation, it is felt to be inopportune to consider the transfer and expansion of the North-Western hospital unit if any other solution of the problem can be found. Though convenient and desirable, it is not essential that deep X ray therapy should be available in the same hospital as radium treatment. The Marie Curie hospital for instance gives radium treatment but sends its patients to the Royal Free hospital for X ray treatment. It has therefore been decided for the present to send patients from the North-Western to Lambeth for X ray treatment, and should the resources there become strained, to make arrangements for X ray treatment at one of the voluntary hospitals.

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[2] Experimental Studies on the Course of Paratyphoid Infections in Avitaminotic Rats. With special reference to vitamin A deficiency. Levin and Munksgaard, Copenhagen, 1931. Pp. 248.

[3] Arch. Dis. Childhood, 1931, vi., 17.

[4] Canad. Med. Assoc. Jour., Oct., 1931, p. 412.

ALBUMINURIA IN PREGNANCY.

G. F. Gibberd's views on the prognosis of albuminuria in pregnancy[1] are supported by those of C. H. Peckham and M. L. Stout,[2] of Johns Hopkins Hospital, Baltimore. Since 1927 a special "toxæmic clinic," antenatal and postnatal, has been in existence in the obstetric department there. Excluding eclampsia and hyperemesis gravidarum, 545 consecutive cases of toxæmia of pregnancy were admitted and delivered in the hospital during the four years 1927–30, and this figure represents a toxæmic incidence of 10 per cent. of all in-patient deliveries. Peckham and Stout consider that a diagnosis of chronic nephritis is established if four months after delivery a patient has either hypertension—i.e., a systolic blood pressure of 150 mm. Hg or more, or a diastolic blood pressure of 100 or more—or persistent and definite albuminuria. Adopting this definition of chronic nephritis, they find that one out of every three of their toxæmic patients ultimately develops chronic nephritis; in other words, 3–4 per cent. of all the women delivered in the hospital develop chronic nephritis. Pregnancy is thus again brought forward as an important ætiological factor in chronic nephritis.

An attempt has been made by Peckham and Stout to distinguish the toxæmias that are secondary to, or will end in, chronic nephritis from those that will resolve completely, and several interesting clinical observations have emerged. It seems that nephritis is seen more frequently in the older age-groups and among multiparæ; two-thirds of the non-nephritic toxæmias occurred in women under 25, and two-thirds in primiparæ. A marked hypertension—systolic pressure of 200 mm. or more, and diastolic of 150 or more—is more often associated with nephritis, although an occasional case of pre-eclampsia is seen with this reading. Albuminuria and its amount they regard as of no prognostic import. The presence or absence of casts in the urine is likewise held to give no differential information. Œdema appeared in the same proportion of cases in the two groups. Even six weeks after delivery many normal women still had hypertension and albuminuria, while a small number of nephritic patients seemed to be normal in these respects. Only 7 per cent. of non-nephritic patients showed hypertension or albuminuria before the seventh month of pregnancy, whereas over half the nephritics were by that time known to be abnormal. However, almost a fifth of the women who ultimately were diagnosed as nephritic were known to be normal until after the seventh month. This seems to indicate that chronic renal damage may be a result of the toxæmic process.

A second paper is published from the same clinic by H. J. Stander and C. H. Peckham,[3] entitled Prognosis in Nephritis Complicating Pregnancy. A total of 236 cases in the ten years 1919–28 are reviewed, and the most important conclusions are the following, which we quote in full: (1) "The maternal mortality occurring within ten years in our series is appallingly high, being 42·53 per cent. The average mortality for women between the ages of 30 and 40 years in this country is 7·5 per cent." (2) "The prognosis in chronic nephritis complicating pregnancy is very grave, the average duration of life after definite diagnosis had been made, being only three and thirty-seven hundredths years in the fatal cases. On the other hand, only 4 of the 50 nephritic women now alive have had subsequent pregnancies, and to date their average duration of life is six and twelve hundredths years, following the diagnosis of chronic nephritis." (3) "The fœtal mortality in our series of pregnant women is over 21 per cent. in viable babies, as compared with 9·5 per cent. for all patients in our clinic." It is important to realise that the cases analysed in these two papers are not comparable, for the second one includes only cases where a diagnosis of chronic nephritis could be made during pregnancy. It would be of great interest if these workers would collect and publish the remote results of the cases of chronic nephritis described in the first paper, with particular reference to the interference with the normal average expectation of life and health.

Sir Robert Jones will deliver his Mitchell Banks lecture, on the Problem of the Stiff Joint, in the Medical School of the University of Liverpool on Thursday, Nov. 19th, at 4 P.M.

THE twelfth Maudsley lecture of the Royal Medico-Psychological Association will be delivered by Sir Hubert Bond on Tuesday, Nov. 24th, at 3 P.M., in the Great Hall of the British Medical Association, Tavistock-square, London, W.C. The title is Testimonied in his own Bringingsforth.

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[1] THE LANCET, Sept. 5th, p. 520; Sept 12th, p. 576; and leading article on Oct. 31st, p. 969.

[2] Bull. Johns Hopkins Hosp., October 1931, p. 225.

[3] Amer. Jour. Obst. and Gyn., Oct., 1931, p. 626.

RED CROSS BLOOD TRANSFUSION SERVICE.—The Medical Research Council and the British Red Cross Society have appointed Dr. H. F. Brewer, senior demonstrator of pathology at St. Bartholomew's Hospital, to be medical officer to the blood transfusion service organised by the Red Cross. Dr. Brewer will supervise the examination of transfusion volunteers, and the collation of information on the effect of blood transfusion on donors, and carry out active and continuous research into blood grouping, so that the service may be kept abreast of the latest developments in surgery and hæmatology. Laboratory facilities are being provided by St. Bartholomew's Hospital. The London service covers an area of about 70 miles round the metropolis.

SPECIAL ARTICLES

THE VITAMIN B CONTENT
OF COMMERCIAL LIVER EXTRACTS AND STOMACH PREPARATIONS.

BY ESMÉ GILROY, D.SC., M.B. EDIN.

(From the Institute of Animal Genetics, Edinburgh University.)

OBSERVATIONS upon the distribution in foodstuffs of the several factors of the vitamin B complex have shown that the antineuritic and anti-dermatitis factors usually occur together, although their relative concentrations varies in different foods. Egg white appears to be the sole example of a foodstuff in which the anti-dermatitis factor, vitamin B_2, is present unaccompanied by the antineuritic factor, B_1 (Chick and Roscoe, 1929), a finding which Chick and Copping (1930) have subsequently confirmed.

Aykroyd and Roscoe (1929) found that dried ox liver was an especially rich source of vitamin B_2, and that it was even superior to yeast in this respect, the capacity of a substance to promote normal growth in rats on a diet deficient only in vitamin B_2 being adopted as the method of assay. More recently Guha (1931) has reported a high vitamin B_2 content in the case of a commercial liver extract (Eli Lilly, No. 343). This extract could induce good growth in rats on a diet deficient only in vitamin B_2 in doses of 40–60 mg. daily, *but if the diet were deficient* also in vitamin B_1 a dose of even 120 mg. did not suffice to maintain growth at the normal rate.

Present Investigation.

During the past year the vitamin B content of a number of commercial liver and stomach preparations has been investigated, and as the results indicate that the majority of these are rich in B_1 as well as in B_2 it seems desirable to publish the experimental records.

The rats used in experiments 1 and 2 were pure albino (Wistar) stock of the "London strain," supplied by the Glaxo laboratories; for the rats used in experiments 3 and 4 I am indebted to Dr. B. P. Wiesner, of the Institute of Animal Genetics, Edinburgh; the latter were also Wistar stock.

In experiment 2 the rats were all of one litter; in experiment 1 two litters were used, as shown by the division line in Fig. 1. In experiments 3 and 4 litter mates were so distributed that the various groups of animals, as subdivided for testing the extracts, were comparable in respect to their genetic constitution.

The young rats, when 40–50 g. in weight, were placed upon a deficient diet of the following constitution:—

Sifted rice starch	60	parts.
Caseinogen (inactivated)	20	"
Cotton-seed oil	8	"
Cod-liver oil	2	"
Salt mixture (M.)	5	"

The materials for this diet were supplied by the Glaxo laboratories, who stated that the cod-liver oil had a high vitamin A content, and showed a blue value of 10, as estimated by Drummond's modification of the Carr and Price antimony trichloride reaction, and that the vitamin D content was *150–200 (M.R.C.) units per gramme.*

This basal diet was entirely deficient in water-soluble vitamins; lemon juice was omitted, as it is known that vitamin C is not necessary for growth in the rat (Hartwell, 1930), and it is possible that lemon juice may contain traces of vitamin B (Bacharach, 1925). Filter paper was supplied as roughage. In order to prevent refection the animals were kept on screens. After a period of 14–18 days on basal diet loss of weight occurred, and the material to be tested was added to the diet in amounts equivalent to 22 g. fresh liver (experiments 1 and 2), or 16 g. fresh liver (experiments 3 and 4). The dry liver preparations were *dissolved in cold water, and the liquid extracts were diluted* to a suitable extent, so that they could be thoroughly mixed with a small quantity of the basal diet, which was fed to the animals first; when this was finished the basal diet was given ad lib. Stomach extracts were fed dry, in doses of 0·5 g. In practice it was found that appetite increased to such an extent among rats receiving the extracts that it was necessary to feed 2–3 times daily; in cases where more than one rat occupied a cage the desire for the food containing liver was so great that a fight ensued, and care was taken that the weaker or more timid members had their fair share of the food.

The results of these experiments are shown in Figs. 1–4; a number has been assigned to each extract, prefixed with the letter "L" or "S" respectively, the former denoting a liver extract, and the latter a stomach preparation. One death occurred in the group of untreated controls shown in Fig. 3, on the twenty-seventh day of the experiment, as indicated at D, but after the addition of a stomach preparation on *twenty-eighth day there was no further mortality*, and a resumption of rapid growth was noticeable. Before the stomach preparation was added to the diet the animals in this control group were all extremely weak and emaciated, with complete loss of appetite. This demonstrates the fact that the basal diet was genuinely deficient in vitamin B_1, and that the excellent results obtained in the case of other preparations was not in any way due to traces of B_1 in the basal ration.

In the case of extract L_1 a temporary slight increase in weight occurred, but after six days growth was completely arrested. At ASF_1 a fraction soluble in 92 per cent. alcohol, which was discarded in the process of manufacture, was added in amounts equivalent to 16 g. fresh liver daily; this caused an immediate resumption of growth. Extract L_4 also failed to maintain normal growth; 0·5 g. acetone extracted wheat germ per head was added to the diet on ninth, tenth, and eleventh days after the extract had first been given, and then discontinued from twelfth to *eighteenth* day. By this time a loss of weight had again occurred, and a similar fraction soluble in 90 per cent. alcohol, derived from the extract, was given at ASF_2; in this case it will be seen that the alcohol soluble fraction had no effect on subsequent growth.

A twelfth liver extract was subsequently tested separately, and was also found to be an efficient source of vitamin B_1.

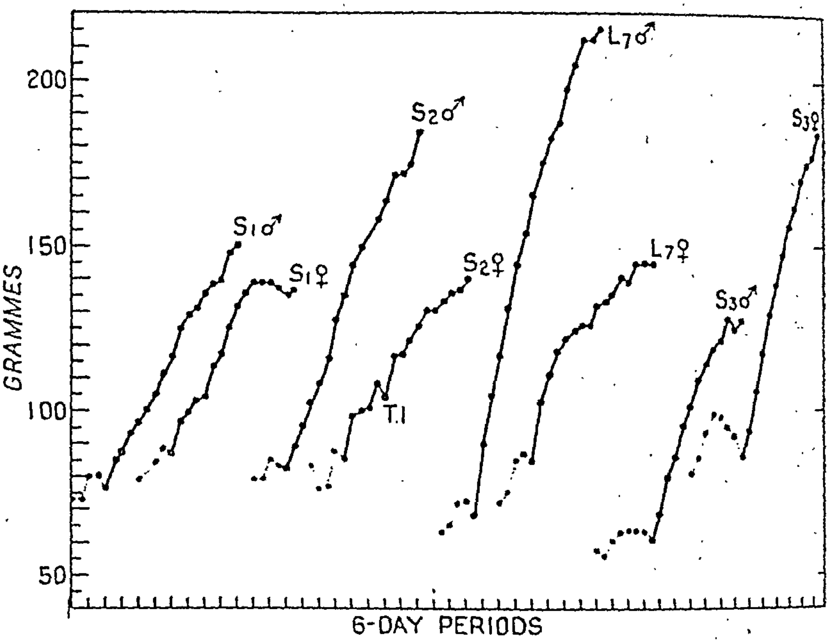
The extracts L_1, L_4, and L_7 were also tested for their vitamin B content in the Glaxo laboratories by Mr. A. L. Bacharach and Miss E. Allchorne, and I have permission to include in this paper a statement that they were able to confirm the present findings for the three extracts mentioned. The technique employed was similar, except that the extracts were administered by pipette instead of being incorporated in part of the basal diet; a similar dosage was employed—i.e., the equivalent of 16 g. of fresh liver per head per day. In their experience extract L_7 was slightly better as a source of B_1 than was extract L_1; the observation that L_4 did not induce growth was entirely confirmed, and a 50 per cent. increase in the dose caused no improvement, but *the addition* of 0·5 g. of wheat germ resulted in normal growth. If extract L_4 was given alone the experiment was terminated by death of the animals in less than 14 days after it was first administered.

Extract L_7 was the first to be tested, and, the requisite daily dose having been determined, this was adopted as a standard with which other extracts were subsequently compared; in every case dosage was calculated in terms of fresh liver equivalents. It was found that 1·0 c.cm. of L_7 gave very good growth, and that 0·5 c.cm. gave fair but subnormal growth, the latter being equivalent to 8·0 g. of fresh liver.

A comparison of the growth-promoting effect of L_7 and of acetone extracted wheat germ was also made, and it will be seen from Fig. 3 that the growth of animals receiving 1·0 c.cm. of L_7 was at least as good as that of rats receiving 1·0 g. of wheat germ as a supplement to the basal ration. As it seemed possible that the wheat germ might be a less efficient source of B_2 than was the liver extract fresh egg white was given throughout the next experiment to the control animals receiving 1·0 g. of wheat germ, but it will be seen that the growth rate in no case exceeded that of the rats which were receiving 1·0 c.cm. of L_7. It was also noted that if 0·5 g. of wheat germ was added to 0·5 c.cm. of extract L_4 the result was the same as if 0·5 c.cm. of L_7 had been given instead. Several other samples of dried yeast and wheat germ were subsequently tested and compared, and the results indicated that 1·0 c.cm. of liver extract was comparable in its B_1 content to 0·5–1·0 g. of such preparations, this in turn being equivalent to 16 g. of fresh liver.

The clinical significance of these observations may be appreciated if the B_1 content of the daily dose of L_7 for a pernicious anæmia case is estimated on the basis of the data presented above. The dose in pernicious anæmia is ½ fl. oz.; ½ fl. oz. = 15 c.cm., 1·0 c.cm. = 1·0 g. of wheat germ, therefore the daily dose of L_7 is equivalent to approximately 15 g. of wheat germ, an amount which would hardly seem to be a negligible addition to the daily diet.

FIG. 2.



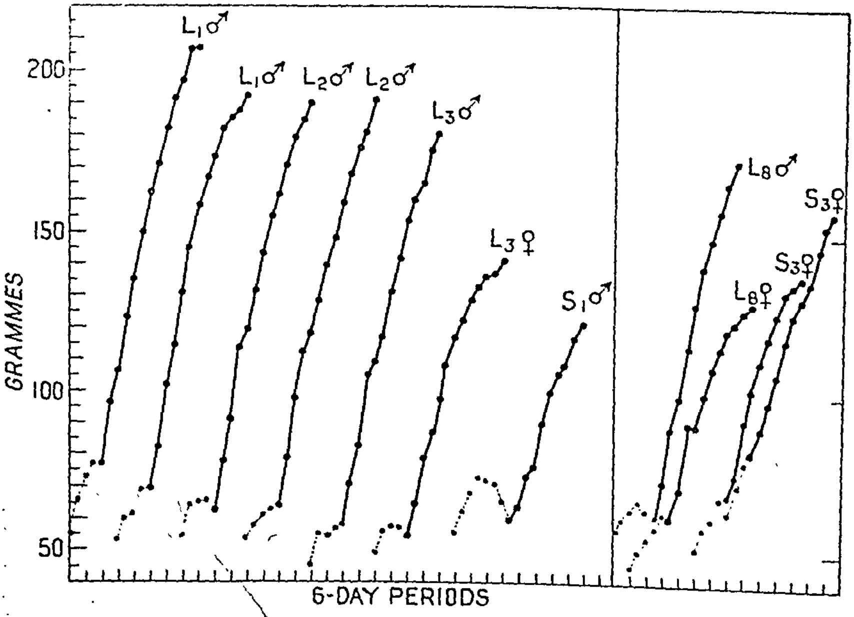
Dosage as in Fig. 1. TI = Temporary indisposition.

GROWTH-PROMOTING PROPERTIES OF LIVER AND STOMACH EXTRACTS.

From the data obtained it was evident that with two exceptions (L_4 and L_5) the liver extracts used in these experiments, given in amounts equivalent to 16 g. of fresh liver daily, were able to induce excellent growth over a period of 30–40 days. It is to be noted further that the rate of growth was greater than that which is generally regarded as satisfactory—i.e., a weekly increment in weight of 20 g. per head. In one experiment, in which the larger dose of liver extract, equivalent to 22 g. of fresh liver, was given daily, the average weekly increase in weight for the first 27 days was in the case of one rat nearly 30 g. The remainder of the animals in this group also grew very rapidly, an increase of 3–4 g. daily being not uncommon for about the first four weeks; reduction in dosage to the equivalent of 16 g. fresh liver induced a similar rapid growth.

It is of particular interest that the rapid gain in weight was maintained for a considerable period; an initial rise in the curve of growth in response to the correction of a dietary deficiency may be expected for a limited period of time, in compensation for the loss of weight during the preliminary period of deprivation, but in many cases it appeared that the rate of growth might not have diminished appreciably if the experiment had been more prolonged. This observation suggests that liver extracts possess growth-promoting properties which may be related only to a high vitamin content, or may be partly due to those protein derivatives which, according to the work of Dakin, West, and Howe (1930), are effective in the treatment of pernicious anæmia. In the case of extracts L_4 and L_5, which failed to induce normal growth, it is of interest that one of these, L_4, was ineffectual in this respect because its preparation involved the separation of a fraction soluble in 92 per cent. alcohol, which was discarded; the addition of this fraction, as indicated in Fig. 3, resulted in a resumption of rapid growth. Extract L_5 was also made by a process in which a fraction soluble in 90 per cent. alcohol was rejected in manufacture, but in this case the restoration of the alcohol-soluble portion did not exert any effect upon the subsequent rate of growth. From certain information kindly put at

FIG. 1.

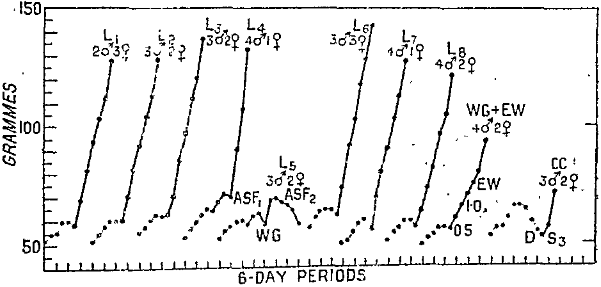


In this and subsequent charts treatment begins at termination of dotted line. Daily dose of extract equivalent to 22 g. of fresh liver.

my disposal by the makers of this extract it was evident that very slight alterations in the method of purification might cause destruction of B_1; the reasons for this inference cannot be further discussed here.

With the exception of S_4 the stomach preparations were quite efficient sources of those factors of the vitamin B complex which are necessary for growth in the rat. In general it may be said that the rate of growth induced was slightly less than that noted in the rats receiving liver extracts, but the stomach preparations were not tried on so many animals, and the smaller size attained by individual rats in experiment 2 could be attributed to a difference in sex.

FIG. 3.

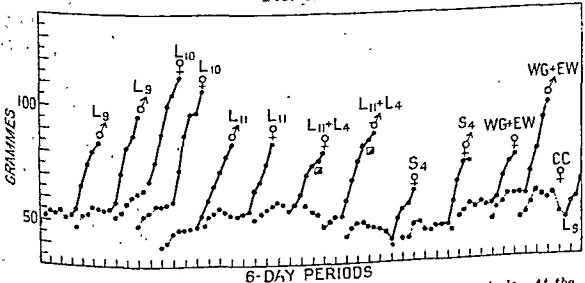


Daily dose of extract equivalent to 16 g. of fresh liver. WG = wheat germ. EW = egg white (fresh). S = stomach ASF$_1$ and ASF$_2$ = alcohol soluble fractions discarded from L_4 and L_5 respectively. CC = untreated controls. D = death of rat.

SURVIVAL OF B_1 AND B_2.

The facts which have emerged from this study of the growth-promoting effects of liver and stomach preparations, as used in the treatment of pernicious anæmia, justify the conclusion that both are naturally rich in vitamins B_1 and B_2, and that only in exceptional cases does the process of manufacture exclude the first factor of the complex; it is seldom actually destroyed, as the method of preparation is not liable to cause any inactivation. It is more remarkable that vitamin B_2 is not destroyed, or at any rate partially inactivated, in the process of manufacture, since this always involves extraction, or washing, with alcohol of a strength which should cause considerable loss of B_2 according to the work of Chick and Roscoe (1929), and more recently of Chick and Copping (1930). Sherman and Sandels (1929, 1931) carried out quantitative estimations on the solubility of vitamin B_2 in neutral alcohol of varying concentrations, and found that 95 per cent. alcohol did not materially diminish the potency of B_2 in dried yeast, but that the solubility of the vitamin increased as the concentration of the alcohol was reduced. They also observed that a similar concentration of alcohol extracted different proportions of B_2 from various foodstuffs, indicating that it was necessary to consider not only the nature of the solvent, but also the chemical and physical nature of the source material, in determining the solubility, or extractability, of B_2. Differences in pH are known to modify the sensitivity of B_2 to alcohol, according to the work of Chick and her collaborators, but it seems unlikely that commercial liver extract would be a sufficiently acid medium to protect the vitamin completely, and it must be assumed that some other factor is responsible for the survival of vitamin B_2 in proprietary liver extracts.

FIG. 4.



WG + EW = wheat germ (1·0 g.) and fresh egg white. CC = untreated controls. At the points marked by half blacked squares L_{11} was stopped. At the asterisks L_{11} was substituted for S_4.

PERNICIOUS ANÆMIA OF PREGNANCY.

It is of interest to note that in certain parts of India anæmia of "pernicious" type occurs among pregnant women, and that this may be correlated with certain dietary deficiencies, notably a lack of vitamins, including vitamin B (Wills and Talpade, 1930). Gulland and Goodall (1925) had recorded the fact that in women pernicious anæmia was frequently associated with pregnancy, and it seems possible that a diet which is sufficient under ordinary circumstances may be inadequate for the pregnant woman. It is known that more vitamin B is required for lactation than for growth (Sure and Schilling, 1928; Evans and Burr, 1928), and many other workers have recorded similar observations. It appeared to be of interest therefore to compare the maintenance dose of liver extract in normal adult unmated animals with that required for pregnancy and lactation, and a small series of experiments were carried out in order to obtain data on this point.

Using albino mice it was found that a dose of the extract L_7 which was sufficient to prevent loss of weight in unmated animals on a diet deficient in vitamin B was not sufficient during gestation. Double this maintenance dose, if added to the basal diet from the first day of the experiment, permitted 2/4 mice to produce litters at normal term; if given on the third day 2/6 animals gave birth to normal litters at term, but if given on sixth day only one out of five produced a litter. If the maintenance dose for unmated mice was given none of the animals in a group of ten was able to proceed to term. The animals were assumed to be pregnant if a vaginal plug was found after the introduction of a male, but as a plug is not invariably followed by pregnancy allowance must be made for this in considering the significance of the observed results.

The high correlation between the amount of liver extract given in the various groups and the proportion of animals achieving full term suggests that such treatment was effectual when started at a sufficiently early date, and the fact that not one out of ten mice went to term on the normal maintenance dose would seem to indicate that the latter was quite insufficient for gestation.

Discussion.

The isolation from a liver fraction of a crystalline salt (West and Howe, 1930), which was shown to be effectual in the treatment of pernicious anæmia, is generally considered to disprove the earlier belief that the active principle of liver was of the nature of an enzyme or catalyst. Even before this important advance it was realised that liver is not the sole source of active principle, in view of the fact that preparations of other organs, such as stomach, had an equal therapeutic effect. It thus became evident that the anti-anæmia factor was not specifically elaborated by the liver, but was present in other glandular tissues.

Despite the undoubted value of the discovery that a crystalline substance could replace the original organ extracts, and that owing to its relative purity it could be subjected to an exact chemical analysis, its isolation does not shed much light upon the ætiology of the disease, except in one important respect. Among the products of hydrolysis of the crystalline substance Dakin, West, and Howe (1930) identified β-hydroxy-glutamic acid and hydroxyproline; Cohn, McMeekin, and Minot (1930) had concluded from their own investigations that the active principle was not an amino-acid, but a nitrogenous base. In either case it was evident that the constituents of the substance in question were protein derivatives, which would seem to indicate that in pernicious anæmia some phase of protein metabolism is at fault. Gulland and Goodall (1925) state "in many cases, indeed, of the cryptogenetic type we have the impression that a metabolic failure is a more likely cause than any other, perhaps in the direction of some abnormality in protein metabolism." It has been recorded by Fontes and Thivolle (1930) that injections of histidine and tryptophan have proved curative in a small number of cases; it has also been noted by Pal (1931) that histidine alone increases the erythrocyte count. Fenyes (1930) has concluded from the results of experiments on rabbits that histamine is indicated in the treatment of pernicious anæmia, as he found that it caused a marked rise in the red cell count, and in hæmoglobin percentage. Quite recently Dakin and West (1931) have reported the isolation of a pyrrole derivative, a tribasic acid, which causes a slight increase in the reticulocyte count in pernicious anæmia.

THERAPEUTIC EFFECTS IN PERNICIOUS ANÆMIA.

If the administration of simple amino-acid mixtures, in various combinations, can effect a cure in pernicious anæmia, it must be assumed that in that condition the body is unable to utilise existing stores of protein derivatives for the specific purpose of blood regeneration. In pernicious anæmia, in contradistinction to the secondary anæmias, there is in the system an accumulation of the products of blood destruction. *It appears that the amino-acids which under normal conditions form the raw material for hæmoglobin synthesis, and blood formation in general, are in some way bound so that they are incapable of assimilation, with a consequent arrest of hæmopoietic function.* β-hydroxy-glutamic acid and hydroxyproline might be of considerable importance in blood formation and for the synthesis of hæmoglobin in particular, as the first of these, according to Dakin (1919), can be converted into hydroxypyrrolidone-carboxylic acid, and he points out that "such changes may well be associated with the synthesis of substances containing the pyrrol nucleus." If it is assumed that in pernicious anæmia there are in the body stores of nitrogenous material which are incapable of utilisation, then such a condition should be curable by either of two therapeutic measures. In the first place *the administration of pure substances necessary for blood formation should permit a resumption of hæmopoietic function*; in the second *it should be possible to mobilise existing protein derivatives if a suitable catalyst were employed.* The first method is apparently in operation in modern methods of treatment by the administration of amino-acid salts; *the second it seems may have been included in the older methods*, in which the administration of organ extracts, prepared by a process which ensured the retention of labile substances, was the basis of clinical research.

PART PLAYED BY VITAMIN B.

It is possible that vitamin B may contribute to the therapeutic effect of liver and stomach preparations in pernicious anæmia, as it has been suggested that one or more of the factors of the complex is intimately concerned in protein metabolism (Reader and Drummond, 1926; Hartwell, 1928); it is therefore quite possible that vitamin B may play the part of catalyst in that particular phase of protein metabolism which is here involved, in the manner referred to above; according to Hassan and Drummond (1927) it is vitamin B_2 which is chiefly concerned.

This hypothesis, that vitamin B may play a part in the treatment of pernicious anæmia by organ extracts, and that lack of it may be a contributory factor in its causation, has only recently received clinical support. Wills and Talpade (1930) recorded the fact that mothers of premature infants frequently suffered from an anæmia in which the blood picture was identical with that of pernicious anæmia, and that they were generally found to be subsisting upon a diet which was markedly deficient in vitamin B. In a further communication, Wills (1931) provides *indisputable evidence that a commercial yeast concentrate* (Marmite) *is as effectual in the treatment of this type of anæmia as is liver extract*; her cases included both pregnant and non-pregnant women but no men. Davidson and Gulland (1930) remark: "The occurrence of a *megaloblastic anæmia in association with pregnancy* is sufficiently common to justify the statement that the strain of child-bearing appears to be an exciting or releasing factor in producing this type of anæmia in certain women." Reference has already been made to the observation that, experimentally, lactation greatly increases the demand for vitamin B. The small series of experiments on mice recorded here, although inadequate to establish the point, suggest that in pregnancy also an augmented supply of vitamin B is required, and that it may play a part in preventing abortion and maintaining the general health. The vitamin B content of diets, while sufficient for most ordinary purposes, may be inadequate in face of the demands imposed by pregnancy; in countries where the diet is commonly inadequate the incidence of "pernicious anæmia" among gravid women may be correspondingly increased.

Wills (1931) refers to the complete lack of response to vitamins A and C in similar cases; it is therefore impossible that the yeast extract owed its activity to either of these. As the author points out, it is quite probable that the same protein derivatives which occur in liver extract might be present also in a concentrate of yeast, but she adds the comment "the fact that the condition is so common among the better-to-do classes, and among Mohammedans, who are meat-eaters, would suggest that a protein deficiency is not the underlying defect." The possibility that a vitamin deficiency might be involved in the causation of anæmia of the pernicious type has been referred to by Berg (1923), and by Dhar (1926). The anæmia of sprue, in which the blood picture is identical with that of Addison's anæmia, is successfully treated with liver extract (Richardson and Klumpp, 1928; Bloomfield and Wyckoff, 1929). Manson-Bahr and Willoughby (1930), who regard an ultramicroscopic virus as the causal organism, nevertheless recommend liver and fresh vegetables as an efficient form of treatment in that disease. It is to be noted that if liver extract, as opposed to whole liver, is active in the treatment of the anæmia of sprue, this disproves the suggestion that fat-soluble vitamins are chiefly concerned, as these are absent in the case of the extracts, being found in considerable amount in the residue rejected. Sprue is, most probably, a multiple deficiency disease, the other phenomena observed, such as the characteristic stools, being related to a fat-soluble vitamin deficiency.

The majority of the anæmias of nutritional origin are of secondary type, as in "rice disease" of rats, but it appears that in these conditions copper and iron are without effect (Whitehead and Barlow, 1929), and that fat-soluble vitamins are not curative, although the anæmia responds to treatment with 2 per cent. yeast. Barnett Sure (1929) records marked hæmopoietic disturbance with loss of serum proteins and slight œdema in the anæmia of avitaminosis, and it is to be noted that œdema was a striking feature of the cases described by Wills. Sherman and Smith (1931) refer to the existence of a vitamin B factor which may influence and regulate the distribution of water in the tissues, and be involved in the development of œdema in association with beri-beri; slight œdema is common in cases of typical Addison's anæmia. According to Yushiua, vitamin deficiency is accompanied by an increased katabolism of body protein which is not compensated by forced feeding of rich nitrogenous foods; Krauss (1930) found that yeast possessed definite powers in stimulating the regeneration of hæmoglobin.

Although it is improbable that the antianæmic factors of Dakin, West, and Howe, and other workers can be identified with vitamin B, it is of interest that the antineuritic factor has been generally considered to contain the pyrimidine ring, or a substance related to it in chemical structure. It would seem that B_1 would be liable to isolation in the same fraction of liver as the antianæmic factor of Cohn, McMeekin, and Minot (1930), since the latter is soluble in 92 per cent. alcohol, and appears to be precipitated by similar reagents. Cohn, Minot, Alles, and Salter appreciated this possibility, and tested various sources of vitamin B in a small number of pernicious anæmia cases. In only one of these did improvement occur during the period of observation, although large doses were employed, but treatment was only given for eight days. These findings appear to exclude the possibility that the antianæmic substance is identical with any known factor of the vitamin B complex, but if formation of the specific substance depends upon a reinstatement of normal metabolic function which can be effected by vitamin B, a delayed result from vitamin therapy might be anticipated. Alternatively, following the successful administration of liver extract, vitamin therapy should be able to maintain a cure. In support of the latter alternative it can be stated that this procedure has been adopted recently in a small series of cases with satisfactory results; the period of observation to date is only three months, but it seems improbable that a normal blood picture would be maintained for this length of time as a result of the short preliminary treatment with liver.

The symptom-complex found in pernicious anæmia presents many features which are suggestive of a chronic deficiency of vitamin B. It is stated by Davidson and Gulland (1930) that "some loss of appetite is usual, and sometimes this is as extreme as in gastric cancer"; anorexia is a prominent feature in deficiency of the antineuritic factor of vitamin B. Lack of B_2 causes "a very unhealthy condition of the whole alimentary tract, especially in the small intestine, which showed signs of inflammation with atrophy of the mucous membrane, and often contained blood-stained mucus." (Reference to the findings of Chick and Roscoe, 1927, quoted by Sherman and Smith, 1930.) The occurrence of œdema in avitaminosis has already been mentioned, and other phenomena, particularly in relation to the nervous system, occur as a result of vitamin B_1 deficiency, and are present also in the pernicious anæmia syndrome.

NERVOUS LESIONS OF PERNICIOUS ANÆMIA.

Theoretically B_1 might be of considerable value in treating the nervous complications which are so characteristic a feature of pernicious anæmia, a fact which has been referred to by Castle and Taylor (1931) in connexion with the administration of liver fractions intravenously. Gildea, Kattwinkel, and Castle (1930) had previously shown that lesions of the central nervous system, comparable to those which occur in subacute combined degeneration in pernicious anæmia cases, could be induced experimentally in animals by deprivation of the antineuritic factor of vitamin B; lack of B_2 did not produce similar changes in the tissues, and the symptoms of its deficiency did not include paralysis, such as occurred in association with deprivation of B_1. The authors, in summarising their results, remark:—

> "Since the chronic deficiency, particularly of the antineuritic portion of vitamin B, appeared to produce in the dogs lesions closely resembling those occurring in human cases of combined system disease, in which achlorhydria is almost invariably encountered, it is suggested that the basis of the development of that disease may be a virtual deficiency of the antineuritic portion of vitamin B, brought about in some way by the achlorhydria."

In this connexion it may be noted that vitamin B_1 is alkali labile, and that loss of gastric acidity would provide conditions under which inactivation would be more liable to occur. It has been stated that liver extracts do not contain the antineuritic factor in significant amount.

Wills (1931) refers to a verbal communication from Chick, stating that "for a rat the minimum doses of liver extract for the two vitamins stand in the relation of even less than 1 to 10." From the data now presented it is evident that such generalisation is contra-indicated, and must tend to cause confusion. Vitamin B_1 cannot be excluded as a therapeutic agent on the ground that it is absent from commercial liver extracts as a whole; its action may of course be subsidiary to that of vitamin B_2, or may be related to a separate group of symptoms.

It is appreciated that the "pernicious anæmia" of pregnancy, which has been shown to respond to treatment with marmite, may prove to be distinct from typical Addison's anæmia, and that the latter may prove entirely resistant to similar forms of treatment. The demonstration that the antineuritic factor is present, in addition to vitamin B_2, in the majority of commercial liver and stomach preparations may, however, be of interest in view of the possibility that certain factors of the vitamin B complex might be involved in cases presenting a blood picture which is identical with that of pernicious anæmia, as originally described.

Summary.

1. Eleven commercial liver extracts and four stomach preparations were tested for their ability to promote normal growth in young rats on a diet deficient in all water-soluble vitamins. Nine of the liver extracts and three of the stomach preparations gave excellent growth. (A twelfth liver extract subsequently tested gave good growth.) From certain preliminary experiments it appears that a liver fraction for intravenous injection does not contain vitamin B_1.

2. The equivalent of 16 g. of fresh liver was found to be an efficient dose; half this amount induced fair but subnormal growth. Standardisation of the first extract to be tested showed that 1·0 c.cm. equivalent to 16 g. of fresh liver was approximately equivalent to 1·0 g. of acetone extracted wheat germ.

3. In the case of one of the two extracts which failed to support normal growth, the addition of a fraction soluble in 92 per cent. alcohol, which was discarded in the process of manufacture, permitted an immediate resumption of rapid growth. An alcohol soluble fraction rejected from the other extract failed to have any effect. In the two extracts referred to the amount of the antineuritic factor was considered to be negligible.

4. In a small series of experiments upon mice evidence was obtained that a dose of liver extract sufficient for maintenance in the normal, unmated, adult animal is inadequate during pregnancy. It appears possible that premature births, and other morbid phenomena, may be associated with a relative deficiency of vitamin B.

5. The significance of the antineuritic factor of the vitamin B complex in the ætiology of certain types of pernicious anæmia, and in the treatment of such conditions, is discussed, with reference to recent clinical observations.

A number of firms have kindly supplied me with liver and stomach preparations, and some of them have made a gift of the material for this investigation. Those from whom I have obtained extracts, and to many of whom I am greatly indebted, are Messrs. Allen and Hanburys, Ltd.; Armour and Co., Ltd.; Bencard, Ltd.; Benger's Food, Ltd.; Boots Pure Drug Co., Ltd.; British Drug Houses, Ltd.; Burroughs, Wellcome and Co.; Evans Sons Lescher and Webb, Ltd.; Organon Products; Parke, Davis and Co.

I also wish to thank Mr. A. L. Bacharach and Miss Allchorne for their kindness in carrying out experiments in confirmation of these observations.

The investigation was made possible by a grant from the Medical Research Council, for which I wish to express my thanks, and I am also indebted to Prof. F. A. E. Crew for scientific hospitality, and for his constant encouragement in this work.

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THE LÜBECK TRIAL.

(FROM OUR BERLIN CORRESPONDENT.)

(*Continued from p. 1038.*)

THE examination of witnesses continues. The father of one of the dead children said that after attending his wife the midwife told him that the infant might be protected against tuberculosis by the Calmette method. He had believed the compound to be a kind of vitamin. Had he been informed that it contained bacilli, however innocuous, he would not have agreed to its administration. When the infant died he reproached the midwife, whose reply was that she had done her duty by handing him the pamphlet, issued by the Lübeck Health Office, describing the Calmette method. Another midwife reported that as early as January, 1930, before its official introduction, an infant had been given B C G vaccine; although the child came of tuberculous parents it had not become ill. Another witness stated that the brother of a child became ill after licking a spoon used for administration of B C G. Evidence was given by a midwife to the effect that chickens who ate by accident of pap mixed with B C G and meant for an infant had died of tuberculosis, and their owner thereupon had brought an action for damages against the State of Lübeck.

Examined by Prof. Lange a midwife stated that she had herself taken a quantity of the compound to show the parents that it was quite innocuous. One of the midwives residing near the city though outside the State of Lübeck reported that when the administration of B C G was stopped she had not been informed nor were the tubes collected from her. Prof. Schümann, of Berlin, who had examined the bodies of 52 children, demonstrated before the court with the aid of lantern slides the result of the autopsies. He had been struck by the fact that a number of the children showed an infection of the lungs such as is produced only by inhaling tubercle bacilli. It was ascertained that one of the midwives had compressed the nostrils of the infants to induce them to swallow the B C G pap, swallowing in this way obviously being accompanied by a deep inspiration. Of the eight children attended by that midwife six had died from pulmonary tuberculosis. The great majority of the children showed a primary infection of the intestine.

In the course of the proceedings counsel for the parents said that although a group of medical men had taken Calmette's view, yet Prof. Deycke had not sufficiently considered the opposing opinions. Reproached by the presiding judge, he apologised for his expression. Counsel for Prof. Deycke blamed Calmette because he had declined to give evidence before the Lübeck court, but had nevertheless given in a German daily paper a very unfavourable opinion on Prof. Deycke and the other accused persons. Prof. Uhlenhuth, as representative of German medical science, regretted that anything had been said against Calmette in view of his great merit as a French scientist.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

EARLY MENTAL DISEASE.

IN opening the new Wellwood Nursing Home, in connexion with the Aberdeen Royal Mental Hospital, Sir Ashley Mackintosh said that the whole trend of modern medical science was in the direction of prevention and early treatment, and in no branch of medical work was this more important than in mental illness, especially in the young. Scotland now has several homes of this kind, and the idea of prevention of nervous disorders is steadily gaining ground. A change seems to have come over both the lay and the medical mind. I can recall the fruitless struggles of the late Sir Thomas Clouston to get a footing for the "nervous" troubles in their early stages. The Scottish Central Board, as well as the mental hospitals, have long been ready for these changes. Even in the mental hospitals the number of voluntary patients steadily increases. But there is still a long way to travel before the resources of physical treatment for incipient patients can be fully utilised.

FAITH IN THE MEDICAL PROFESSION.

At the recent Glasgow graduation in science and medicine Principal Rait said that there was a time when this ignorant and helpless world looked upon the medical profession as endowed with magical gifts, and regarded the medicine men as other than ordinary human beings. That this state of mind had altered was not because the laymen had acquired any familiarity with the fundamental principles of the science of medicine or of surgery. The lay world had still to trust the profession almost as blindly and as implicitly as it did in the state of society depicted by the anthropologists and the historical novelists. That trust was a responsibility which had been borne by the profession through many centuries—borne so honourably and so worthily that from the moment they began to practise, and before they had had time to give any proof of their own skill, the new graduates would receive a confidence which might seem to them pathetic in its simplicity.

MEDICINE AND THE LAW.

Posing as a Doctor.

Is not the system of appointing ships' doctors sometimes a trifle lax? The question is asked in view of remarkable evidence recently given at West Ham police-court during a prosecution under the Medical Acts. According to the account given by a representative of the Public Prosecutor, a young man named Charles John Powell, aged 21, previously a hospital attendant, decided last March to emigrate in search of employment. To obtain a passage to Australia, he applied to the Commonwealth and Dominion Line for the post of doctor and surgeon. Being given a form to fill up, he apparently chose from the Medical Directory the name of a medical practitioner in Scotland whose surname began with the same initial letter as his own. This practitioner's qualifications (shown in the Register as "M.B., Ch.B. Ed., 1928") Powell inserted in the form, which he then signed with the practitioner's name. He was eventually posted to the s.s. *Port Denison*, and proceeded to Australia as ship's doctor, attending to several patients on the voyage. In August he applied to the shipping company in Australia to be taken on again in the same capacity, and he came back to England in s.s. *Port Arthur*. When required to report to the immigration authorities, he admitted that he was not the medical practitioner whose name he had adopted: he said he had gone to Australia in search of work. The magistrate asked what remuneration he had received. The answer was that Powell signed on at *1s.* a month and his food, and had not in fact drawn his wages. The magistrate remarked that he would like to know if all the doctors on this line were rewarded with *1s.* a month for their services. A detective-inspector in charge of the case explained that doctors who wished to travel from England to Australia, or *vice versa*, were carried free in this way. With the admirable fairness with which the police bring out any fact in favour of an accused person, the inspector said that Powell had never been in trouble before and greatly regretted what he had done. Nothing wrong had been noticed in his treatment of patients on the outward voyage; Powell had really come back in s.s. *Port Arthur* in order to attend the ship's captain, who had heart disease; his treatment (following, it seems, the instructions of genuine medical practitioners) had been very good. Powell himself explained to the court that the *Port Denison* did not generally carry a doctor, and the *Port Arthur* never carried one at all.

Up to this point the impression might well have prevailed that the accused was a public benefactor whose successful empiricism deserved generous recognition from the General Medical Council. The magistrate, however, took a different view. "You do not seem to realise," he is reported to have said to Powell, "that here you are, a man sweeping out a nursing-home, posing as a doctor and going on a long voyage to Australia. You might have had several deaths on board, and, if people you treated had died, it is pretty clear you would have been charged with manslaughter. However, the Public Prosecutor asks me to deal with the case under the Medical Act. You must pay a fine of £5 and £3 3*s.* costs or 31 days imprisonment." Earlier in the proceedings the magistrate pointed out that, in signing the doctor's name, Powell had made himself liable to conviction for forgery. He certainly seems a fortunate young man; his journey to Australia and back has cost him very little. His fellow-passengers were fortunate too. He might not have managed surgical operations as successfully as he treated the captain's heart disease.

Ambiguous Bequest ("London General Hospital Fund").

Mr. Gustav Boringer, late of Crouch End, Finchley, made a will on July 20th, 1928, by which he bequeathed the residue of his estate to "the London General Hospital Fund." There being no fund of that name, the trustees of the will had to obtain a decision of the Chancery Division as to the disposal of the money. One of the principles applicable to the construction of wills is that the courts must not ascribe to a testator any intention not expressed in his will, but they must give effect to every intention which the will, properly expounded, contains. Extrinsic evidence is admissible to explain what he wrote; it is not admissible if it merely shows what he meant to have written. The question, in fact, is not so much what the testator meant as what is the meaning of the words he used. Two claimants appeared in respect of Mr. Boringer's bequest. The London Hospital put in evidence by affidavit of the late Lord Knutsford's broadcast appeal in 1928 for 2,000,000 half-crowns; it contended that the London Hospital was a general hospital, and it gave reasons for the belief that Mr. Boringer was aware of the appeal on its behalf. The other claimant was the King Edward's Hospital Fund for London, an organisation which, as Mr. Justice Clauson observed in his decision, was established with the object of applying funds towards the benefit of the hospitals of London, "hospitals" being widely defined for the purpose. The testator, said the judge, had in mind the idea of a fund for hospitals generally; the King Edward's Hospital Fund for London must therefore be held entitled to the bequest.

Ambiguity in these matters is regrettable. The services of seven counsel were required to elucidate the conundrum inadvertently propounded by a generous testator. The two claimants were each represented by a K.C. and a junior; the trustees of the will had to appear by counsel, the next of kin were also represented, and, as the case concerned a charity, the Treasury Solicitor briefed counsel to express the views (if required) of the Attorney-General. The costs of these proceedings will not be exceptionally heavy, but the Hospital Fund will be the poorer by that amount.

Reprieve of Boy Murderer.

The Home Secretary announces the reprieve of the death sentence passed at Lincoln Assizes on Harold Smith, aged 16, for the murder of his aunt. This accords with the usual practice. The Home Office representatives told the Select Committee on Capital Punishment that no youth under 18 years of age has been executed in this country for the past 40 years. Sir John Anderson's memorandum on executions in England and Wales in the period from 1901 to 1929 showed the Committee that in that period three males of 18 years suffered capital punishment, nine males of 19, and seven males of 20 years. Above the age of 21 considerations of clemency towards youth apparently have little effect: out of a total of 405 persons executed in that period, 148 were of the ages of 21 to 29. In 1924 the Departmental Committee on the Treatment of Young Offenders recommended that nobody under the age of 18 should suffer capital punishment. The more recent Select Committee on Capital Punishment, while desirous of abolishing the death penalty for an experimental period of five years, recommended conditionally that, if Parliament decided to retain the death penalty, the age should be raised to 21 "inasmuch as 21 is the age when full civil responsibility is assumed." Had Harold Smith been under the age of 16, Section 103 of the Children Act would have forbidden the death sentence from being either pronounced or recorded; in lieu thereof the judge would have had to pass a sentence of detention during His Majesty's pleasure in such place and subject to such conditions as the Secretary of State may direct. It seems undesirable that death sentences should be pronounced on young persons of 16 and 17 if it is reasonably certain that the penalty will not be exacted The jury's strong recommendation of mercy in Harold Smith's favour almost suggests that they thought his life was at stake. Such an impression would be needlessly cruel for him and for them. On the other hand, if he and they knew that the danger was unreal, the dignity of the judicial proceedings is diminished. The Home Office could abolish capital punishment forthwith, for persons under 21 or for all persons whatsoever, by tendering appropriate advice as to the exercise of the Royal Prerogative of Mercy. But the judges would still have to pronounce death sentences on persons over 16. Whether 18 or 21 be accepted as the minimum age for executions, the law as to the pronouncement of death sentences should be in harmony. Forms should suit facts in the administration of criminal justice.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt.-Comdr. E. C. Davis has been appointed to *Furious.*

ROYAL ARMY MEDICAL CORPS.

Capts. T. Parr and D. W. M. Mackenzie to be Majs.

ARMY RESERVE OF OFFICERS.

Lt.-Col. M. G. Winder and Maj. J. I. W. Morris, having attained the age limit of liability to recall, cease to belong to the Reserve of Officers.

TERRITORIAL ARMY.

Lts. S. J. Hartfall and H. B. Trumper to be Capts.

2nd Lt. W. M. Arnott, from 57th (Lowland) Med. Bde. R.A., to be Lt.

INDIAN MEDICAL SERVICE.

Maj. J. H. Hislop to be Lt.-Col.

The undermentioned officers retire: Lt.-Cols. W. Tarr and A. O. Anderson.

Capt. George Durairaj Gnanamuttu, the relinquishment of whose temp commn. has been notified, is permitted to retain the rank of Capt.

ROYAL AIR FORCE.

C. H. Smith is granted a short service commission as a Flying Officer for three years on the active list.

DEATHS IN THE SERVICES.

The death of Deputy Inspector General of Hospitals and Fleets, Henry Lawrence Crocker, R.N., retd., took place at Plymouth recently at the age of 79. He entered the Naval Medical Service in 1876, and after seeing service abroad was promoted to fleet surgeon in 1893. After serving in the battleship *Rodney* in the Mediterranean and in the *Royal Arthur* flagship in Australia, he retired with the rank of Deputy Inspector General in 1906.

CORRESPONDENCE

NUTTALL PORTRAIT FUND.

To the Editor of THE LANCET.

SIR,—Last week Prof. Nuttall retired from the chair of biology at Cambridge, which he has held for 25 years, and his friends think that he should be presented with some token of the esteem and affection in which they hold him. There is no doubt he would very greatly appreciate a portrait by an eminent artist, and we have decided to collect a fund with this object in view. It is hardly necessary to point out the conspicuous services Prof. Nuttall has rendered to preventive medicine in the fields of bacteriology, immunity, hygiene, and parasitology, by his personal researches and encouragement to others. In addition he has founded and edited two of the leading journals concerned with hygiene and parasitology, and by his efforts has obtained funds to found the Molteno Institute of Parasitology. As a result, there has arisen a school of research workers, now scattered throughout the world, many of whom gratefully acknowledge the inspiration which they have derived from his teaching and example.

Contributions, not exceeding three guineas, should be made payable to Dr. C. M. Wenyon, *but sent to the address given below*, and cheques should be crossed a/c Nuttall Portrait Fund.

We are, Sir, yours faithfully,

David Bruce
H. R. Dean
Clifford Dobell
Walter M. Fletcher
J. Stanley Gardiner
G. S. Graham-Smith
M. Greenwood
J. S. Haldane
F. Gowland Hopkins
D. Keilin
J. C. G. Ledingham
G. C. Low
W. P. MacArthur
P. Manson-Bahr
Guy A. K. Marshall
George Newman
A. B. Ramsay
(Master of Magdalene)
L. E. Robinson
Humphry Rolleston
C. Warburton
Warrington Yorke
C. M. Wenyon
(Hon. Treasurer)
E. Hindle
(Hon. Secretary).

32, Belsize-avenue, London, N.W.3, Nov. 6th, 1931.

RACIAL HERD-IMMUNITY.

To the Editor of THE LANCET.

SIR,—Your most interesting leading article on Racial Herd-Immunity of the Maori (Oct. 1st, p. 970), seems to bring indeed evidence of those, to my mind, very rare truly racial immunities, and by this I mean immunities based on hereditary factors. Yet, on the other hand, it shows how intricate the questions of racial differences in fact are, and how difficult it is to separate environmental factors from truly hereditary ones. I should like to point out a few items.

A few years ago I had the opportunity of examining medically many pure blood Eskimos and many mixed breeds on the North Coast of Labrador, and amongst these about 100 children pure and mixed. The cutaneous tuberculin test in these children gave the following results: 9·8 per cent. of positive reactions amongst pure Eskimo children (51 cases), and 56·2 per cent. amongst mixed breeds (32 cases). These figures show an overwhelming majority of infected cases in mixed breeds, nearly six times more amongst those who live in Eskimo country and Eskimo climate on European food, which means much tinned food, tinned margarine, bad flour, the mainstay often being tea, molasses, and ship's biscuits. The Eskimos, on the other hand, consume large quantities of raw seal blubber, raw seal blood, raw seal meat, and raw organs. Yet tuberculosis amongst Eskimos is always a very fatal disease; they succumb to it in a few weeks, and the disease is always of a galloping type. Now, in whites, tuberculosis is of very old standing, many thousands of years in fact, and, as is well known, chronic tuberculosis is the rule in Europeans, and acute tuberculosis of a galloping type the exception. We may conclude with Behring that in whites this is a sign of a beginning immunity, and instance of really racial peculiarity; whereas in Eskimos the juxtaposition of the results of the tuberculin tests and of the mortality to tuberculosis would not be convincing.

To take another instance, Orr, Macleod, and Mackie, in their Studies on Nutrition in Relation to Immunity,[1] have based their observations partly on experimental animals and partly on investigations into the nature of diet and incidence of disease in two East African tribes with different dietary habits. A survey of the incidence of disease taken in the native reserves showed that in the tribe with a diet consisting chiefly of cereals, pulmonary conditions, bronchitis, and pneumonia accounted for 31 per cent. of all cases of sickness, tropical ulcers for 33, and phthisis for 6, compared with only 4, 3, and 1 respectively in the tribe with meat, milk, and raw blood diet. In this tribe the chief disease was rheumatoid arthritis, associated with chronic constipation. Besides this, the cereal-eating tribe suffered generally from heavy infestation with intestinal parasites. In this case infectious and non-infectious diseases are brought into correlation with diet in two various native groups, and the apparent differences are striking.

Further, C. W. Daniels, in his text-book on Tropical Medicine, states: "Race is no protection to the negro who has been brought up in temperate and healthy climates when he returns to West Africa, the land of his forefathers." This will suffice. My point is, that it is very difficult to bring forward absolutely unimpeachable evidence of hereditary immunity in different races. A careful scrutiny of colonial medical literature at the library of the London School of Hygiene and Tropical Medicine on the subject of racial, or, as I prefer to call it, ethnic pathology, has provided me with more indications of environmental factors than of truly hereditary influences. Study of pathology in the different races shows how little we know about heredity in man, and how insufficient is genetic evidence based entirely on morphology.

I am, Sir, yours faithfully,

V. SUK.

Masaryk University, Brno, Czechoslovakia, Nov. 4th, 1931.

RADIUM BY MOUTH OR INJECTION.

To the Editor of THE LANCET.

SIR,—I have read Dr. Mutch's paper in your last issue (p. 1013) with considerable interest for several reasons. I am treating some cases of cancer by means of radioactive colloids; these are feebly radioactive. I have reason to be gratified by the results, but after reading an account of the later results of radium ingestion I have come to the conclusion that more prolonged observation on animals should be made before increasing the normal radioactivity of the human body. H. S. Martland reports,[2] amongst other results, nine cases of osteogenic sarcoma developing from four to ten years after cessation of contact with radioactive substances. His numbers are not large, but he concludes that the mortality from sarcoma in radium poisoning is 27 per cent. against 0·07 per cent. in the general community. It may be objected that the dosage of radium ingested in his cases was greater than that used therapeutically; this may be true, but where the residual radioactivity of the body was tested, the totals are not much larger than those advised by Dr. Mutch—the figures being 6, 14, 15, 30, and 50 microgrammes in those cases which were investigated.

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[1] THE LANCET, 1931, i., 1177.

[2] Amer. Jour. Cancer, 1931, xv., 2435.

Before I used radioactive colloid on humans I had its toxicity in mice and rabbits tested over ten weeks. Ten weeks for a mouse is about one-tenth of its expectation of life, and is sufficiently long a period over which to gauge early toxicity. But Martland reports cases of sarcoma developing after ten years cessation of ingestion. I have therefore started to observe the later effects on other series of rodents.

The experimental evidence of the toxicity of radium by injection or ingestion is mostly concerned with the early results, and usually large dosage. I would suggest that in view of Martland's findings much more work should be done on animals, using as many kinds as possible, and observing for much longer periods before the non-gaseous radium preparations are injected or ingested in man. A temporary, and even more a permanent, reduction in high blood pressure, &c., may well be too dear at the price of subsequent maxillary osteomyelitis, aplastic anæmia, leukæmia, rarefactive osteitis, and osteogenic sarcoma.

I am, Sir, yours faithfully,

Bristol, Nov. 7th, 1931. A. T. TODD.

DANGER OF TREATING OPHTHALMIA NEONATORUM WITH MERCURIC PERCHLORIDE.

To the Editor of THE LANCET.

SIR,—It is generally recognised that a safe method of treating ophthalmia neonatorum is frequent washing out with 15 oz. of normal saline or saturated boric solutions at body temperature. In Brighton mild cases are treated at home by the Queen's nurses, the washing out being repeated four times daily, each treatment occupying half an hour. Care is taken to run the fluid gently into the inner canthus and not directly on to the cornea. The more severe cases are at once removed to hospital, where hourly treatment during the day and night always suffices to bring about an immediate improvement. The treatment is at times supplemented by drops of organic silver preparations once daily. Unfortunately, treatment with mercuric perchloride is still recommended in certain text-books and is at times prescribed for cases treated at home. The disastrous results of this treatment in combination with silver nitrate drops is evidenced by the following four cases, three of which are recent.

In three cases a solution of mercury perchloride, 1 in 10,000, was used, and silver nitrate (1 per cent.) drops at the end of the first and last daily treatments: in the fourth case perchloride and permanganate were used alternately, with silver nitrate drops twice daily. In only one case (E) was the attack of a severe nature at the onset. The patients were not seen by the doctor responsible until the seventh (E), eighth (J), seventeenth (W), and nineteenth (B) days of life, and treatment by district nurses was begun on the tenth, eighth, seventeenth, and nineteenth days. In each case, when the above-mentioned treatment was begun by the Queen's nurses, there was conjunctivitis and purulent discharge, but little or no puffiness, the eyes being easily opened. The treatment seemed at first to lead to a slight improvement with, in one case, a lessened discharge. In two cases (J and B) on the fourth and fifth day of perchloride treatment corneal ulcers suddenly appeared with considerable surrounding infiltration. In the case of W, improvement in the general condition was gradual up to the seventh day, and the nurse was astonished to find the cornea of one eye dead (completely infiltrated) on the morning of the eighth day, and in the afternoon of the same day a similar condition in the other eye, this without increase of discharge and without œdema of the lids. In the fourth case (E) on the third day of the alternate perchloride and permanganate treatment, the condition seemed to be improving with no ulceration of the cornea of the one eye affected; by the fifth day both eyes were in a bad state with marked œdema of the eyelids and pus welling out; on admission to hospital it was thought inadvisable to attempt to view the corneal condition, in case the necessary manipulation might aggravate the condition. From the time that these cases were put under treatment in hospital, and boric lotion substituted for perchloride lotion and colloidal silver drops once daily for silver nitrate drops twice daily, a gradual improvement immediately began. Unfortunately, permanent damage had already been done. E is blind in both eyes, W will probably be blind in both eyes, whilst J and B may possibly have sight in one eye.

Cases, whether treated at home or in hospital with frequent large washings (15 oz.) of normal saline or boric lotion, have never failed to improve, and it is only in the four cases mentioned, treated with mercuric chloride solution and silver nitrate drops, that uniform success has not attended treatment. I am driven therefore to conclude that the disastrous results in these four cases were caused by the perchloride of mercury, the silver nitrate or a combination of these acting on already weakened corneal tissue. Silver nitrate, even in 1 per cent. solution, is irritating; applied after the mercuric perchloride it would be to some extent precipitated as silver chloride with the formation of highly deliquescent mercury nitrate. I have inquired from the doctor in charge of one of our best-known maternity hospitals as to their practice, and received the following reply:

> "Our practice is that every baby born gets 1 per cent. silver nitrate into each eye. This ensures absolute prevention. If the baby gets ophthalmia (which practically never occurs) 2 per cent. silver nitrate is used twice daily, and the eyes are washed out with boric lotion."

In view of the above statement, and the fact that in at least three of our cases the silver nitrate was rendered partly inert by its administration after the washing out with perchloride of mercury, I am not inclined to attribute the bad results of treatment to the silver nitrate drops. My impression is that whilst the large quantities of fluid used kept the eyes clean, the perchloride of mercury gradually weakened and finally killed the superficial layers of the cornea.

Whilst it may be interesting to speculate on the real cause of the disastrous results of treatment, the important thing is the recognition by writers of text-books and all practitioners of the danger of mercuric perchloride and silver nitrate treatments, and the recognition of the never failing efficacy of treatment with normal saline or boric lotion, with perhaps the occasional use of an organic silver preparation. My hope is that it will become generally recognised that (1) metallic disinfectants powerful enough to destroy organisms are harmful to the body tissues, and that therefore continual treatment with perchloride of mercury and inorganic silver nitrate is dangerous; and (2) fortunately, perchloride of mercury is unnecessary, as good results can be consistently obtained by normal saline or boric lotion.

I am, Sir, yours faithfully,

DUNCAN FORBES.

Brighton, Nov. 7th, 1931.

HIGH CARBOHYDRATE DIET IN DIABETES.

To the Editor of THE LANCET.

SIR,—I thank you for your courtesy in reporting my lecture on Recent Advances in the Treatment of Diabetes. I had not arranged the lecture with publication in view, and I should therefore be grateful if you would here allow me to add some other points that I have found to be of practical importance in the treatment of diabetes, though they are not yet established on a sound experimental basis that permits them to be harmonised in a general view of the pathology of the disease.

Some details were given for the diet of a new patient or of one just emerging from diabetic coma; but additional precautions need to be stressed in the management of an old patient for whom the change from the low to the high carbohydrate dietary may be desired. The first step on changing a patient over from a high fat to a high carbohydrate diet should not be made by merely reducing the fat whilst leaving the carbohydrate unaltered, for in insulin-treated patients symptoms of hypoglycæmia may be produced. By doing nothing beyond cutting the fat down at one blow to one-third or less of the amount previously administered to patients balanced on a high fat diet, I have, in a considerable number of cases, evoked marked symptoms of insulin overdosage, and indeed in one case, a child aged 8 years, the patient was swung over from a condition of persistent glycosuria to one of hypoglycæmic coma. The change over therefore when it is made must be direct from the high fat to the high carbohydrate diet. This is further supported by finding that there are certain diets with intermediate amounts of carbohydrate on which patients do not do well. Even with these precautions hypoglycæmic symptoms may still be induced and it is always as well if the patient cannot be kept under constant observation to make some slight reduction of the insulin before effecting the change to the high carbohydrate diet.

On these as on other diets the persistence of sugar in the urine passed after breakfast, long after it has cleared from all other specimens, is a striking feature. This phenomenon appears to be connected with the well-known fact that, in the diabetic, the blood-sugar does not fall during sleep but rises steadily. The idea occurred to me, from purely hypothetical considerations, that the giving of a carbohydrate meal, uncovered by insulin, about 11 P.M. or midnight, would prevent this nocturnal rise of blood-sugar, and thus abolish the after-breakfast glycosuria. The result in the majority but not in all of the cases was that not only did the sugar disappear after breakfast, but that glycosuria was not caused by the 11 P.M. meal. From the practical point of view one may say that if the patient is passing some sugar after breakfast, and there is no sugar in the urine passed either before breakfast or at the end of the previous evening, then the giving of carbohydrate at night—e.g., four Vita Weat biscuits and half a pint of milk—will probably clear up the morning glycosuria. It is surprising what quantities of sugar can be given in this late supper without sugar appearing in the urine, indeed one of my patients took 80 grammes of carbohydrate at night before his urine became sugar-free the following morning.

Finally, I should like to say that in patients on a high carbohydrate diet it has been my experience that, as recommended by Dr. E. P. Poulton, the best time to give insulin is often more than half an hour before meals. If mild hypoglycæmic symptoms continue to appear after meals in a patient in whom reduction of insulin produces glycosuria, by progressively increasing the interval between the injection and the meal symptoms may easily be abolished.

I am, Sir, yours faithfully,

H. P. HIMSWORTH.

University College Hospital Medical School,
University-street, W.C., Nov. 9th, 1931.

THE REGISTRAR-GENERAL.

To the Editor of THE LANCET.

SIR.—Prof. Greenwood's address, reported in your issue of Nov. 7th (p. 1024), has raised in my mind the question, Why should not the Registrar-General in England be a physician? I come to this question through reading his reports on occupational mortality. The form of their publication has changed in recent years. The supplement to the sixty-fifth report (Part II., published, 8vo, in 1908) was in fact a letter to the Registrar-General from Dr. J. G. Tatham on mortality in certain occupations during the years 1900–02, and was signed by him. A new series then began, and the supplement to the seventy-fifth report on mortality of men in certain occupations during the years 1910–12 (Part IV., published, foolscap, in 1923) is unsigned. The current decennial supplement for England and Wales (1921) on occupational mortality, &c. (Part II., published in 1927), is also unsigned. I have had occasion to use all these, especially the last, and found myself uneasy at first in studying it, as it bore, to support its far-reaching and novel conclusions, no name of anyone with a medical education to give the initial confidence felt in the suggestions of a medical colleague. I did not then know of the personality of the medical statistical officer behind them. It is difficult to see why the experience and prestige of so skilled a physician should not be quoted in support of his work. Indeed, the Registrar-General, who is a principal secretary of the Ministry of Health, has for his most vital duty the guidance of the Ministry in its policy by the collection of the relevant statistical studies, a duty he can only discharge through the inspiration of a wise physician. Why, then, is the source of that inspiration not declared nowadays, and why indeed should not the Registrar-General in England be a physician, as he has long been in Scotland?

I am, Sir, yours faithfully,

W. E. HOME,
Fleet-Surgeon.

Southborough, Kent, Nov. 8th, 1931.

PULMONARY ASBESTOSIS COMPLICATED BY PULMONARY TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—In reference to the article by Dr. W. Burton Wood and myself on p. 954 of THE LANCET of Oct. 31st, our attention has been called to an error in quotation from Dr. E. R. A. Merewether. We state that "Merewether found evidence of active tuberculosis in the chests of three out of 374 asbestos operatives examined whilst at work." This should read *four* active cases, three of whom gave a family history, which makes the percentage figure 1·07 instead of 0·8 as stated. In addition to these four active cases Merewether found 33 inactive cases, making 37 in all, or 9·9 per cent. of the 374 examined.

I am, Sir, yours faithfully,

S. ROODHOUSE GLOYNE.

Nov. 5th, 1931.

HUGHLINGS JACKSON FUND.

To the Editor of THE LANCET.

SIR,—Your readers will doubtless remember that in March last you published a letter signed by Sir Thomas Barlow and others inviting subscriptions to a fund to endow the triennial Hughlings Jackson lecture of the Neurological Section of the Royal Society of Medicine. No less than 131 subscribers have furnished a total of £1110, including 17 names from America, 2 from Holland, 3 from France, and 1 from Germany. Although we hoped to obtain a slightly higher figure—viz., £1200—yet, in spite of the non-materialisation of two promises amounting to £21, we shall be able to provide a gold medal as well as a fair honorarium for the lecturer. In these difficult times such a response indicates the devotion still existing to the memory of the master who left us 20 years ago.

The medal will bear on the obverse Hughlings Jackson's portrait, based on that published in *Brain* in 1906, and the execution of the die is in the hands of the well-known medallist Mr. James Metcalfe. The first medal will be presented to this year's lecturer Sir Charles Sherrington, O.M., F.R.S.

I am, Sir, yours faithfully,
WILFRED HARRIS.

Wimpole-street, W., Nov. 5th, 1931.

CANCER OF THE CERVIX.

To the Editor of THE LANCET.

SIR,—It is unusual for authors to criticise the opinions expressed by reviewers, but there is one paragraph in your kindly review of my book "Diseases of Women," in your issue of Oct. 31st (p. 965), which I feel ought not to pass unchallenged. Your reviewer states:

> "It is unfortunate that Mr. Stevens should perpetuate the error that the most frequent variety of cancer of the cervix is the squamous epithelioma. By far the most common variety is columnar cancer; squamous epithelioma is really rare."

If this is really an error it is common to most text-books of pathology and gynæcology. For example, Eden, in a Manual of Gynæcology, states that "75 to 80 per cent. of all cancers of the cervix are squamous epitheliomata." The recognised authorities cannot all be wrong, and many years spent in histological research have convinced me that they are right. Thus it would appear that your reviewer is exceptional in the opinion expressed.

I am, Sir, yours faithfully,
THOS. G. STEVENS.

Upper Wimpole-street, W., Nov. 8th, 1931.

*** We have submitted this letter to our reviewer, who reiterates his opinion that squamous epithelioma is one of the rarest forms of cervical cancer.—ED. L.

READING OF BRAILLE BY SIGHT.

To the Editor of THE LANCET.

SIR,—Very few sighted people, if any, read Braille by touch alone, there being no necessity on their part to concentrate to this attainment, but the deciphering of Braille, whether the embossing be linear, interlinear, or interpointal, is very trying to the normal reader, and must cause fatigue, conscious or unconscious, even in those accustomed to the work. Conservation of sight is, or should be, a primary consideration, and I have come to the conclusion that for sighted teachers in schools for the blind, who are constantly reading and correcting Braille productions of students, as well as for those who read Braille journals and magazines, the following method may prove of great benefit: Over the Braille embossed page spread a sheet of pencil or soft typewriting carbon-paper and gently press with the fingers and palm of the hand so that the dark pigment may colour the tops of the prominences, causing the bosses to stand out distinctly, thereby making deciphering easier and thus relieving eyestrain. Other methods may, of course, be adopted, such as brushing gently with the carbon and pressing it over the bosses; or a stick of charcoal can be rubbed over a Braille page, the surplus dust being flicked off with a light duster, when it will be found that a certain amount of deposit will remain adherent to the bosses as the fibres of the paper have been disturbed; but in my opinion this last method is not so good or effective as the carbon-paper.

The above suggestions may also be of value to readers who are unfortunately losing their sight.

I am, Sir, yours faithfully,
FREDK. WM. ALEXANDER.

Teddington, Middlesex, Nov. 4th, 1931.

MASSIVE COLLAPSE OF THE LUNG.

To the Editor of THE LANCET.

SIR,—The very interesting case recorded by Dr. T. E. Gumpert and Dr. T. MacLennan in your issue of Nov. 7th (p. 1017) might, I think, be explained in a manner different to that put forward by the authors. The injury to the fifth and sixth ribs could readily produce a lesion of the pleura associated with hæmorrhage. As is well known, blood in the pleura does not clot immediately. The absorption of serum would account for the pyrexia as occurs in most cases of surgical operation, and the production of fibrin would cause pleural irritation with pain on deep inspiration and irritable cough. The sudden onset may occur in any form of pleurisy. A small area of pleurisy near the middle line front or back can originate serious and sudden symptoms and may be difficult to detect. The defective movement of the left chest and impaired note and breath sounds are conditions produced by fixation through tonic muscular action, a phenomenon constant with acute pleural irritation. I have found no evidence that it occurs with a clear cut and pure intrapulmonary condition. The other signs I have explained in a letter to you (Oct. 24th, p. 934). The subsequent course of this case is the usual one in such cases of massive collapse attack.

The authors attribute the condition to implication of the sympathetic chain in the neighbourhood of a damaged left crus, upsetting the balance between sympathetic and vagus innervation of the lungs. It is difficult to see what precise form of injury would stimulate for an isolated period of about 24 hours the nerve fibres in the sympathetic chain, or why such stimulation if it could occur should cease suddenly or should affect the left lung only to the exclusion of other parts, such as the right lung or the heart. Removal of one sympathetic chain in experimental animals does not lead to one sided massive collapse as one would expect if this theory were sufficient to account for all the symptoms.

This isolated and sudden change in the balance of sympathetic and vagus action is the basis of the present theory of Woodburn Morrison adopted by the present authors. It does not explain the pain and I doubt if it accounts for the pyrexia and suddenness of the onset. It takes no account of the state of the chest wall nor of the frequent finding of pleurisy. It is a fascinating theory and attempts to bring in new facts to explain a puzzle.

I must reassert the fact that with quiet and unconscious breathing the diaphragm, especially the muscular portion, is elevated cephalicwards when the supine or reclining posture is assumed from the upright. I shall be pleased to show any unbelievers the methods employed and the tracings obtained in my investigations.

I am, Sir, yours faithfully,
CHARLTON BRISCOE.
Harley-street, W., Nov. 10th, 1931.

MEDICAL WORK IN THE SERVICES.

To the Editor of THE LANCET.

SIR,—Having regard to the apparent unreadiness of medical men to embrace a life in the medical branches of the fighting services, it may be of interest to consider the following observations.

The first is taken from the *Bache Review*, New York, of May 16th, and is quoted by Prof. William McDougall on p. 94 of "World Chaos" (London, 1931). Although the passage refers to artisans it is also applicable to many medical men whose work is their sole means of livelihood. "It is confidently believed that if fear of lack of work were removed from the mind of the working man, he would approach his work with an entirely different attitude, his intelligence would be aroused, his interest stimulated, and he would have enthusiasm and satisfaction from the work to be done."

The second observation is taken from your report of Dr. R. M. Beath's oration at the Royal Victoria Hospital, Belfast (THE LANCET, Oct. 31st, p. 989). Dr. Beath is reported as saying that the complete doctor needs three things in addition to his medical learning. These are: (1) association with his fellows and more especially those engaged in different work from himself; (2) reading of general literature; and (3) travel. He should "see as much as possible of other countries, different scenery, different modes of life, habits, and customs, different art and architecture, and also of medical work in other places."

In the medical services referred to the conditions required in the foregoing passages are fulfilled. It is surprising that they are not more widely appreciated. I enclose my card, and am, Sir,

Yours faithfully,
READER.
Nov. 9th, 1931.

PANEL AND CONTRACT PRACTICE

INCREASED CERTIFICATION IN IRELAND.

AN important circular has been issued by the National Health Insurance Commission of the Irish Free State to all medical certifiers, dealing with what is termed "undue increase in the number of medical certificates issued." The word "undue" seems to beg the question, since no evidence is given to show that certificates are issued more readily than at any previous time, and it is understood that the increase in payments for sickness benefit in the Irish Free State is not greater proportionally than in Great Britain. The circular states that the number of medical certificates issued has increased by 77 per cent. between 1923 and 1930, the actual figures being 709,262 and 1,253,224. During the same period the amount expended by approved societies on sickness and disablement benefits has grown by 74 per cent. from £354,828 to £617,699. The matter has recently been considered by a subcommittee of the Advisory committee, consisting of representatives of the medical profession and the approved societies, and as a result of their report the Commission desire to impress on medical certifiers certain urgent and important points, which are stated as follows:—

"(*a*) If you issue a medical certificate of incapacity to a person who is not incapable of work you are placing a burden on the National Health Insurance Fund which it was not designed to bear; for which no provision was made in the contributions; and which, if continued, must lead to financial instability.

"(*b*) Before issuing a certificate of incapacity you should conscientiously examine every person who applies for a medical certificate. If he is unable to visit you, *it is your duty to visit and examine him.*

"(*c*) If you are satisfied that he is incapable of work, owing to some specific disease or to bodily or mental disablement, you should issue a certificate.

"(*d*) A certificate of incapacity should be based solely on your honest opinion as to the state of the applicant's health as disclosed by your examination. A certificate should not be issued on sympathetic grounds—e.g., unemployment or poverty.

"(*e*) If you are satisfied that he is *not* incapable of work *you should without hesitation refuse to issue a certificate and notify the Commission on Form M.C.6.*

(A record of the number of these Forms received from you each quarter will be kept, and if you are issuing a large number of certificates and sending few or no notification of refusals, special investigation will be made.)

"(*f*) If you are in doubt as to whether the applicant is capable or incapable of work, you should, in addition to issuing or refusing to issue a certificate, apply immediately on Form D.M.4 for a second opinion under the District Medical Referee Scheme.

"(*g*) *If you find that an applicant, who has been incapable of work and to whom you have been issuing certificates, is fit for work or will be fit in not more than three days, issue a final certificate to that effect at once.*

"(*h*) Do not issue a certificate to any person other than *the insured person to whom it applies.* Issue to a third party often leads to fraud."

The Commission add that in future the maximum monetary penalty to which certifiers will be liable for breaches of their agreement will be raised from £5 to £20, and that cases of serious irregularity shall be reported to the Medical Registration Council. They appeal for the coöperation of every medical certifier, and add that in case of proven irregularity in future the Commission will deal drastically with the certifier concerned.

REFERENCE TO R.M.O.'S.

Dr. F. K. Tomlinson (Godalming) writes: In your issue of Oct. 3rd (p. 771) "Rural Panel" exposed the real cause of excessive certification. I should like to draw attention to an obvious case of indiscriminate referring by an approved society.

A girl, aged 20, saw two doctors in a nearby town on Oct. 3rd, 1930. On Oct. 9th she came to my surgery, stating that as they had advised her to rest she had come to stay with her only relative here. On Oct. 10th I visited and examined. Heart and lungs nil. Abdomen nil. Pulse 78. Blood pressure 130/60. Hb index 75. *History of menorrhagia with clots.* Always lost a lot of blood after tooth extractions. Urine nil. Next menstrual period Oct. 22nd. Was very pale. I *certified* menorrhagia, and put her on calcium lactate and a diet with high Fe-content. On Oct. 15th I received a form for the R.M.O. The girl informed me that *no* visitor had been near. Her society is not a local one.

In my reply to the R.M.O. I stated that no proof of any improvement could occur before her next menstrual period. Surely Rural Panel's suggestion that we, and not the societies, should be allowed to refer cases would obviate such useless procedure after a single week's sickness or investigation.

OBITUARY

BILTON POLLARD, M.D., B.S.Lond., F.R.C.S.Eng.,

CONSULTING SURGEON, UNIVERSITY COLLEGE HOSPITAL.

WE regret to announce the death of Mr. Bilton Pollard, Emeritus Professor of Clinical Surgery at University College, London, which occurred on Thursday, Nov. 5th, at his residence in Bournemouth a few days before his 76th birthday.

Bilton Pollard was the youngest son of a medical man, Mr. Tempest Pollard, of Rastrick, Yorkshire, and was born in November, 1855. He received his general education at St. Peter's School, York, and Epsom College and entered University College, London, in 1874. Joining the medical school he qualified as M.R.C.S. in 1879, and graduated M.B., B.S. in the University of London in the following year. He was a distinguished student throughout, being Filliter exhibitioner and Bruce medallist, while at his final examinations for the M.B. he obtained first-class honours. He took the F.R.C.S. Eng. in 1881, and held a series of junior appointments at University College Hospital as house officer, demonstrator of anatomy, and assistant to the professor of clinical surgery. In 1882 he took the valuable appointment of resident surgeon at the Royal Infirmary, Manchester, which he held for two years, when he returned to U.C.H. as surgical registrar. In 1886 he was elected surgeon to the North-Eastern Hospital for Children, Bethnal Green (renamed "Queen's" in 1908), with which institution he remained connected until his death, as surgeon and consulting surgeon. In 1887 he became assistant surgeon to University College Hospital, where the surgical staff comprised, among others, Christopher Heath, Marcus Beck, Rickman Godlee, and Victor Horsley, who was his immediate senior; seven years later he succeeded to the full surgeoncy which he filled for exactly 20 years. During his long connexion with the hospital he won high opinions among his colleagues alike for his skill and his prudence, while among the students he was recognised from the commencement of his work at the school as a valuable teacher. It is not surprising therefore that he should have been in demand as an examiner, his services in this way being called upon in the Universities of Oxford and Manchester, while he was a member of the Court of Examiners of the Royal College of Surgeons of England for a prolonged period. In 1896 Pollard was elected professor of clinical surgery at University College, becoming emeritus professor in 1915, and from 1910 to 1918 he was a member of the Council of the Royal College of Surgeons.

MR. BILTON POLLARD.

[Photograph by Elliott & Fry.

Bilton Pollard's medical writings were all strictly surgical, and founded upon his own clinical experience. They are to be found in the Surgical Reports of his hospital, in the transactions of the old Royal Medical and Chirurgical and Pathological Societies, in our own columns, and in those of the *British Medical Journal*, and in Heath's Dictionary of Surgery to which he was a valuable contributor. The most part of this work was done in the earlier days of his career, and the procedures recorded prove him to have been an advanced and scientific operator, who rightly earned the reputation which he enjoyed with his professional colleagues and the public. He edited a steady series of editions of "Heath's Minor Surgery," a popular little text-book, which he made practically useful for many years. In 1915 he was elected consulting surgeon to the hospital, and shortly afterwards he retired from practice. He never married.

Dr. Herbert Spencer writes: "Sad and sorrowing at the loss of my oldest and dearest friend, Bilton Pollard, I send you a few lines concerning him. In my opinion he was the best all-round surgeon and one of the best men I have ever met. A fine anatomist, an able teacher, a loyal colleague, skilful, careful, thorough, and kind, 'Bilton' enjoyed the trust and confidence of colleagues, pupils, and patients alike. With great experience he combined skill and sound judgment and an uncommon amount of common sense. His hands, like Lawson Tait's, were chubby; but oh! how skilful! As an operator he was slow; but oh! how careful! He inculcated by his example and by his success the value of exact suturing in surgery, demonstrating that the greater the difficulty the greater was the need for the care and exactness which need time. I have seen him take nearly four hours to remove the cancerous colon together with the kidney involved. The patient made a simple recovery and remained well for many years. In another case of cancer of the colon which had been refused operation by a well-known surgeon, Pollard operated and for more than 20 years afterwards he was gratified by receiving a card from the patient on the anniversaries of the operation. His hare-lip operations were beautiful examples of his plastic work. He early acquired a great experience of practical surgery at Manchester, while his surgical reports at University College Hospital, which contain a description of each case, with microscopical examinations carried out by himself, have, I think, never been surpassed. They are a lasting monument to the thoroughness of his hospital work, as are his case-books of patients in the wards. Pollard had a large private practice up to the time of his retirement from ill-health; but his publications, accurate and lucid like all he did, were comparatively few. For his surgical skill he will be mourned by many; for his goodness by his most intimate friends."

Mr. Raymond Johnson writes: "The death of Bilton Pollard removes one to whom all University College Hospital men, who came under his influence and the many others, who in one way or another were associated with him, will look back with unmixed feelings of affection and respect. It is no mere figure of speech to say that Pollard was a man of sterling worth, absolutely free from any suspicion of show or insincerity and very intolerant of such in others. He always seemed to me to be incapable of a mean or unkind action, but he could be quietly very outspoken when he felt strongly on any subject. As a surgeon Pollard's judgment was extraordinarily

(*Continued at foot of next page.*)

MEDICAL NEWS

niversity of Cambridge.

On Nov. 7th the following degrees were conferred :—

M.B. and B.Chir.—R. B. Mayfield, G. H. G. Southwell-ander, and W. H. Poole.

M.B.—W. J. Wilkin.

B.Chir.—Douglas Divine.

nglish Conjoint Examining Board.

At the final examination, held from Oct. 12th to Nov. 2nd, e following candidates were approved in the subjects dicated below, but are not yet eligible for diplomas :—

Medicine.—T. Abdel Rahman, Royal Free; H. Barcroft, mb. and St. Mary's; H. J. Beard, Manchester; F. H. E. ckett, Guy's; M. Blashka, Charing Cross; S. B. Bromberg, Mary's; R. C. Brown, St. Thomas's; F. E. Buckland, ford and St. George's; M. Chalkowski, St. George's; D. C. Wet, St. Thomas's; Fanny C. Fraser, Royal Free; D. C. een, St. Thomas's; L. E. Green, St. Bart.'s; M. A. F. A. ll, Birmingham; C. F. Hamilton-Turner, Oxford and George's; Anne E. M. Herbert, King's Coll.; O. S. Heyns, iv. Coll.; A. Kennedy, St. Thomas's; L. W. Lausto, Thomas's; Mary A. McKean, Royal Free; G. Maizels, nchester; K. Malik, L.D.S. Eng., London; Irene P. Murray, ng's Coll.; R. S. Ogborn, Univ. Coll.; R. H. Patel, Birming- m; E. D. Portman, Manchester; E. R. B. Reynolds Thomas's; A. J. Sanghani, M.B. Bombay, West London; B. H. Saunders, and O. A. Savage, St. Bart.'s; J. A. E. ett, Oxford and Middlesex; W. Garraway Smith, L.D.S. Eng., iff; Joan W. Stelfox, Liverpool; J. R. Strong, St. Bart.'s; K. K. Sze, Camb. and St. Thomas's; G. H. Taylor, Guy's; ta Traub, King's Coll.; J. H. West, St. Bart.'s; J. I. Wilson, iv. Coll.; and F. H. Wood, Birmingham.

Surgery.—H. C. Bamford, St. Bart.'s; W. C. Barber, Camb. d Manchester; G. N. Barker, St. Thomas's; C. H. Bateman, Bart.'s; J. H. B. Beal, Oxford and St. Bart.'s; F. H. E. ckett, Guy's; H. L. Beckitt, London; Mavis W. M. Boddall, iv. Coll.; J. G. Billington, St. Thomas's; Jane Bonnell, es and King's Coll.; H. T. L. Broadway, St. Thomas's; H. P. Clark, London; G. H. Cooray, Ceylon and Univ. Coll.; H. de B. Crowther-Smith, Guy's; J. F. Dales, Univ. Coll.; H. Daly, St. Mary's; T. A. L. Davies, St. Thomas's; G. E. nkerley, Univ. Coll.; R. M. Ebeid, St. Thomas's; H. Edwards, 's; R. T. Elven, Guy's; J. Fishman, London; H. R. bery, L.M.S.S.A., Middlesex; L. Freeman, St. Bart.'s; M. Gill, Middlesex; F. J. S. Gowar, Middlesex; R. D. on, London; J. N. Groves, Camb. and St. Bart.'s; K. W. rdy, London; Helen A. Hatrick, Univ. Coll.; F. R. Hayward, 's; K. H. C. Hester, London; W. N. Hine, Middlesex; Hollinrake, St. Bart.'s; A. Hollingsworth, St. Thomas's; S. Holzman, London; J. Hughes, M.P.S., Bristol; W. A. slop, London; W. L. James, Guy's; E. T. Jones, Wales d London; G. W. Kendrick, St. Thomas's; W. S. G. Lawson, Thomas's; Gladys A. R. Lenanton, Royal Free; J. T. R. wis, Middlesex; W. H. Lewis, Camb. and Guy's; I. A. cDougall, Guy's; S. A. MacKeith, St. Mary's; N. F. lagan, Middlesex; M. N. Mahmood, M.B. Punjab, Middlesex; Maran, Univ. Coll.; R. G. Mayall, Camb. and St. George's; J. Meikle, Camb. and Middlesex; B. C. Murless, Camb. and Bart.'s; G. Y. Oon, Charing Cross; A. H. Osmond, Birming- h; R. Parkinson, London; J. C. Pedley, Middlesex; ah W. K. Petter, Royal Free; C. R. D. Porter, Middlesex; W. H. Porter, Middlesex; K. C. Priddy, London; F. Rad- le, Camb. and St. Bart.'s; A. E. G. Ridgway, London; D. Roberts, St. Bart.'s; M. Rooms, Leeds; H. Rosenberg, 's; H. W. Salmon, Middlesex; J. R. S. Sharp, Guy's; F. Simkin, St. Mary's; R. E. H. Simpson, St. Thomas's; H. Singh, M.B. Bombay, King's Coll.; R. H. Smith, Camb. St. Thomas's; M. G. Stratford, Univ. Coll.; O. S. Tubbs, Bart.'s; W. Wilson, Camb. and St. Bart.'s; and H. T. S. e, King's Coll.

Midwifery.—H. Agar, Leeds; S. D. Ahuja, M.B. Punjab, ring Cross; R. M. Alford, St. Thomas's; J. C. G. Anderton, Camb. and Westminster; F. C. Angior, Liverpool; Mary Aquino, M.B. Bombay; Monica H. Austin, King's Coll.; W. C. Barber, Camb. and Manchester; C. G. Barnes, St. Mary's; J. Bayley, St. Thomas's; J. H. B. Beal, Oxford and St. Bart.'s; H. J. Beard, Manchester; S. Begum, M.B. Punjab; G. T. Bevir, Bristol; J. R. Blackburne, St. Bart.'s; Jane Bonnell, King's Coll.; R. W. W. Bose, Camb. and London; J. A. Boycott, Oxford and Univ. Coll.; E. Braithwaite, Oxford and London; A. Brown, King's Coll.; J. Cann, Camb. and St. Thomas's; W. M. Capper, St. Bart.'s; A. Carling, Oxford and St. Thomas's; R. G. C. G. Carlson, Bristol; D. B. Cater, Camb. and Charing Cross; B. Cates, St. Bart.'s; I. A. Cathie, Guy's; J. R. Chambers, Camb. and Middlesex; S. J. Chesser, Camb. and St. Thomas's; R. H. P. Clark, London; B. Cohen, Middlesex; H. Cohen, Middlesex; Margaret J. Cooper, Royal Free; S. W. Cooper, St. Mary's; E. H. de B. Crowther-Smith, Guy's; P. H. Daly, St. Mary's; D. T. Davies, St. Bart.'s; Mary T. Day, Charing Cross; H. De, Calcutta and St. George's; G. C. T. Du Toit, St. Bart.'s; R. T. Elven, Guy's; G. M. Evans, Bristol; M. H. Evans, Oxford and Middlesex; A. L. Eyre-Brook, Bristol; H. F. M. Finzel, Bristol; E. C. Fountaine, Camb. and St. Bart.'s; A. E. Francis, St. Bart.'s; G. H. M. Franklin, Manchester; W. H. Gabb, Camb. and St. Bart.'s; A. H. Galley, King's Coll.; G. D. Galwankar, Bombay; T. A. Gavin, Guy's; D. W. C. Gawne, Camb. and St. Bart.'s; H. T. Giblin, St. Mary's; B. Gilbert St. Thomas's; R. G. Gilbert, St. Bart.'s; K. J. Gilchrist, Guy's; L. Greenfield, London; E. H. B. Grey, London; J. N. Groves, Camb. and St. Bart.'s; R. J. C. Hamilton, St. George's; Joan G. Harcourt, Royal Free; J. C. Hardy, Univ. Coll.; G. R. Hargreaves, Univ. Coll.; F. R. Hayward, Guy's; C. L. Heanley, Camb. and London; A. A. Heathcote, Camb. and St. Bart.'s; R. A. Hooper, Camb. and St. Thomas's; M. D. O. Hosford, St. Bart.'s; T. G. Hovenden, Oxford and St. Thomas's; A. C. Howard, Univ. Coll.; R. B. Hughes, Leeds; B. Haynes, Middlesex; A. D. Iliff, St. Bart.'s; D. H. Irish, Guy's; E. A. James and E. James, Leeds; K. C. Jeffery, London; W. R. Johnston, St. Mary's; C. G. Jones, Middlesex; T. B. Jones, Camb. and St. Thomas's; M. Katz, St. Bart.'s; K. D. Keele, St. Bart.'s; L. Kessel, Guy's; L. O'N. Knox, Guy's; R. Knox, Oxford and St. Bart.'s; A. R. R. Le Fleming, Camb. and St. Thomas's; A. W. D. Leishman, Oxford and St. Bart.'s; D. T. Lewis, Cardiff and St. Mary's; R. M. Littledale, Middlesex; M. B. McGinn, London; J. G. McGrath, Manchester; J. D. Macleod, St. Thomas's; M. N. Mahmood, M.B. Punjab, Middlesex; G. Maizels, Manchester; G. A. Mandow, Camb. and St. Bart.'s; R. G. Mayall, Camb. and St. George's; A. R. R. Mears, Camb. and St. Bart.'s; I. R. W. Merrick, King's Coll.; J. A. W. Miller, Guy's; T. D. F. Money, Camb. and St. Thomas's; C. C. Morgans, Camb. and St. Thomas's; B. C. Murless, Camb. and St. Bart.'s; W. Mushin, London; D. R. Narang, M.B. Punjab, London; W. T. North, Guy's; J. A. Nunn, St. Bart.'s; H. E. Offord, St. George's; Josie M. Oldfield, Royal Free; C. V. Oldroyd, Manchester; H. Owen, Oxford and St. Mary's; G. B. Palmer, L.D.S. Eng., Guy's; J. Parkes, Camb. and St. Thomas's; R. Parkinson, London; R. E. J. Pembrey, St. Thomas's; O. R. L. L. Plunkett, St. George's; C. B. R. Pollock, Guy's; C. G. Post, Guy's; E. C. Powell, Cardiff and Guy's; F. J. P. Price, King's Coll.; Pushpawati, Punjab and Royal Free; A. Rashid, Lahore; J. C. Read, L.D.S. Eng., Guy's; L. Redhouse, Middlesex; H. G. Rees, Middlesex; R. G. Reid, Guy's; J. P. Reidy, London; A. E. A. Ridgway, A.M.I.M.E., Charing Cross; H. J. M. Robinson, Camb. and St. George's; A. Rothwell, Camb. and King's Coll.; C. N. Royal, Bristol; A. C. Rumsey, Camb. and London; R. H. Rushton, King's Coll.; T. J. Ryan, St. Bart.'s; Frances N. Salisbury, Bristol; A. W. Sampey, London; O. E. L. Sampson, Bristol; A. J. Sanghani, M.B. Bombay, West London; G. C. Sawyer, Guy's; B. H. Sayed, St. George's; J. L. S. Scott, St. Bart.'s; E. F. Scowen, St. Bart.'s; V. M. Seifert, London; J. C. Selnes, Oslo and Charing Cross; B. Shanovitch, London; F. J. Sladen, Middlesex; W. Garraway Smith, L.D.S. Eng., Cardiff; W. H. C. Spooner, St. Mary's; J. F. Stephens, St Thomas's; M. Sternberg, Middlesex; R. Stevenson, Camb. and St Thomas's; M. G. Stratford, Univ. Coll.; W. T. Swanton, L.M.S.S.A. Lond., Cork and Charing Cross; E. H. Thierry, Univ. Coll.; C. W. Thomas, Camb. and St. Thomas's; J. T. Turner, Camb. and St. Thomas's; C. M. Vaillant, Oxford and Liverpool; H. B. D. Vaughan, St. Bart.'s; O. J. Vaughan-Jackson, Oxford and London; D. P. Viljoen, St. Bart.'s; A. A. M. Wajih, Bengal and Charing Cross; Celia Weinstein, Royal Free; H. A. T. Wells, Madras and Guy's; R. A. L. Wenger, Camb. and St. Bart.'s; E. E. S. Wheatley, St. Thomas's; H. D. White, Camb. and St. Bart.'s; R. H. H. Williams, Camb. and St. Bart.'s; L. J. Wolfson, Guy's; T. G. R. Woods, St. Bart.'s; S. W. Wright, Guy's; and K. E. L. Yuill, Birmingham.

Pathology.—A. L. Abeyewardene, Ceylon and Univ. Coll.; J. C. G. Anderton, Westminster; C. G. Baker, L.D.S. Eng., Guy's; C. G. Barnes, St. Mary's; G. T. Bevir, Bristol; T. P. Binns, Guy's; H. W. Boake, Camb. and St. Thomas's; C. P. F. Boulden, London; E. Braithwaite, Oxford and London; A. E. Burjony, Durham; J. D. Burrows, St. Thomas's; D. B. Cater, Camb. and Charing Cross; I. A. Cathie, Guy's; M. Chalkowski, St. George's; J. R. Chambers, Camb. and Middlesex; J. G. R. Clarke, St. Thomas's; J. C. Colbeck, Guy's; T. A. Connold, St. Thomas's; N. C. Coombs, Bristol; H. O. N. Cooper, Oxford and Guy's; D. R. Crabb, St. Bart.'s; G. W. Crimmin, Camb. and St. Thomas's; C. F. Cumings, King's Coll.; F. J. Curtis, Camb. and Guy's; A. M. Davies, Bristol; L. S. De Silva, King's Coll.; J. F. H. Eagles, Bristol; W. G. Evans, Camb. and St. Mary's; W. J. M. Evans, Cardiff; A. L. Eyre-Brook, Bristol; K. Fawssett, St. Thomas's; H. F. M. Finzel, Bristol; L. P. Fitch, St. Thomas's; F. E. Fletcher, Bristol; A. E. Francis, St. Bart.'s; D. W. C. Gawne, Camb. and

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(Continued from previous page.)

und and his opinion most valuable. His operating as free from any attempt at display; it was carried t with a deliberation, which was apt to be mistaken slowness, and, when occasion required, could be rried to very courageous lengths. The best proof the esteem in which Pollard was held by his prosional brethren is afforded by the large numbers them who came to him for the surgical treatment themselves and their families. I well remember w, many years ago, in conversation among certain nior members of the staff, the question arose as to hom we should choose in advance to treat us for y medical or surgical ailment which might at y time befall us and the unanimous choice was ilton Pollard. Had he been asked to whom he was ost indebted in his surgical career I am quite sure s answer would have been Marcus Beck."

St. Bart.'s; G. H. Gibbens, St. Thomas's; B. Gilbert, St. Thomas's; R. G. Gilbert, St. Bart.'s; P. A. I. Gorer, Guy's; C. H. Gray, Manchester; D. C. Green, St. Thomas's; E. H. B. Grey, London; N. C. Griffin, Leeds; J. Halperin, St. Bart.'s; G. R. Hargreaves, Univ. Coll.; Anne E. M. Herbert, King's Coll.; E. A. Hoare, St. Thomas's; L. P. Hodgson, Birmingham; H. V. D. Iles, Guy's; E. James, Leeds; K. C. Jeffery, London; W. B. Johnston, St. Mary's; R. A. Jones, Camb. and London; S. O. Jones, King's Coll.; W. S. G. Lawson, St. Thomas's; Z. Lefkovitz, Cardiff; S. Livni, London; M. J. F. McArdle, Guy's; G. A. Mandow, Camb. and St. Bart.'s; Gwendolen E. Matthews, Westminster; A. R. R. Mears, Camb. and St. Bart.'s; G. A. Miller, Camb. and Guy's; T. D. F. Money, Camb. and St. Thomas's; W. H. W. Morris, St. Thomas's; W. Mushin, London; J. W. M. Owen, St. Mary's; J. Parkes, Camb. and St. Thomas's; R. E. J. Pembrey, St. Thomas's; G. C. Post, Guy's; E. C. Powell, Guy's; G. A. Powell-Tuck, Birmingham; R. Raines, Leeds; L. Redhouse, Middlesex; A. E. A. Ridgway, Charing Cross; H. Rosenberg, Guy's; Frances N. Salisbury, Bristol; O. E. L. Sampson, Bristol; M. H. P. Sayers, St. Thomas's; R. F. Simkin, St. Mary's; E. R. Sinton, Birmingham; S. F. Smith, St. Thomas's; S. B. Smith, Guy's; E. J. Somerset, King's Coll.; W. H. C. Spooner, St. Mary's; F. Summers, King's Coll.; Barbara M. G. Taylor, Leeds; N. S. Taylor, King's Coll.; Enid A. Taylour, Bristol; A. E. Terry, Leeds; D. H. H. Thomas, Westminster; G. L. Timms, St. Thomas's; J. B. L. Tombleson, St. Thomas's; Greta Traub, King's Coll.; O. S. Tubbs, St. Bart.'s; O. J. Vaughan-Jackson, Oxford and London; D. P. Viljoen, St. Bart.'s; E. J. Walsham, St. Thomas's; and W. Wilson, Camb. and St. Bart.'s.

Society of Apothecaries of London.

In future a separate examination in pathology and bacteriology (written, practical, and oral) will form section I. of the final examination for the diploma of L.M.S.S.A. Candidates must take this section not later than the last part of section II. of the final examination, and will be admissible to it not less than 24 months after passing in anatomy and physiology, on production of the certificates laid down. This Regulation will not apply to candidates who pass, or become entitled to exemption from, the primary examination in anatomy and physiology before Jan. 31st, 1932. Candidates who begin their professional studies after Jan. 1st, 1932, will be required to complete the whole of section II. of the final examination (medicine, surgery, midwifery, and forensic medicine) within a period not exceeding 25 months. In cases where the period has been exceeded, it will be necessary for candidates to pass again in any subject or subjects in which they may have already satisfied the examiners, until this regulation is complied with.

Royal College of Surgeons of England.

The annual meeting of Fellows and Members will be held at the College in Lincoln's Inn Fields on Nov. 19th at 3 P.M. A resolution suggesting the representation of Members on the College Council will be moved by Sir Ernest Graham-Little, M.P.

Royal College of Physicians of Edinburgh.

A quarterly meeting of the College was held on Nov. 3rd with Sir Norman Walker, the President, in the chair. Dr. Thomas Douglas Inch (Gorebridge) and Dr. Edward Robert Charles Walker (Aberdeen) were introduced and took their seats as Fellows of the College. Dr. James Douglas Allan Gray (Liverpool), Dr. John Gibb McCrie (Edinburgh), and Dr. Douglas Nairn Nicholson (Edinburgh) were elected to the Fellowship.

The Hill Pattison-Struthers bursary in anatomy and physiology was awarded to Norman Macdonald. The Wood bursary was awarded to Alastair William Wright. A Certificate of Qualification to Lecture was conferred upon Dr. Donald Stewart.

At an extraordinary meeting held after the quarterly meeting, it was decided to offer the honorary Fellowship of the College to Mr. John Wheeler Dowden, president of the Royal College of Surgeons of Edinburgh.

Royal Faculty of Physicians and Surgeons of Glasgow.

The following office-bearers have been elected for the ensuing year: President, Mr. R. Barclay Ness; Visitor, Dr. J. M. Munro Kerr; Hon. Treasurer, Mr. J. H. MacDonald; Hon. Librarian, Dr. E. H. L. Oliphant; Representative to the General Medical Council, Mr. G. H. Edington; Councillors (in addition to the above), Mr. Andrew Allison, Dr. Carstairs C. Douglas, Dr. John F. Fergus, Mr. John Gracie, Dr. John Henderson, Mr. W. Dove Macfarlane, Dr. J. Souttar McKendrick, Mr. W. Ferguson Mackenzie, Mr. W. J. Richard, and Mr. Archibald Young.

In demitting office the retiring president, Dr. John F. Fergus, gave a donation to the benevolent fund of the faculty. He also presented a silver inkstand—a replica of that in the House of Commons—on which the arms of the Faculty are engraved with the inscription: "To the Faculty, beloved and held in honour by Andrew Fergus, President, 1874–77 and 1883–1886; A. Freeland Fergus, President, 1918–1921; John F. Fergus, President, 1929–1931, from J.F.F. 1931."

Yorkshire Aberdeen Graduates Association.

The annual dinner of this association will be held at th Midland Hotel, Bradford, on Friday, Nov. 20th. Th chief guest will be Lieut.-Colonel David Rorie. Aberde graduates of either sex are welcome, and should communica with the hon. secretary: Dr. J. G. Thomson, 33, Verno road, Leeds.

Model Abattoir Society.

Sir James Crichton-Browne will preside at the tent annual Benjamin Ward Richardson lecture, which wi be given on Wednesday, Nov. 25th, at 5 P.M., at the Roy Sanitary Institute, 90, Buckingham Palace-road, Londo S.W. 1, by Mr. Hal Williams, M.I.Mech.E. His subje will be Disease and the Public Abattoir.

British Empire Cancer Campaign.

Sir Charles Gordon-Watson presided at the quarte meeting of the Grand Council of the campaign on Nov. 10 The Council made further grants for one year of £600 to th cancer research committee of the Marie Curie Hospit £300 to Mrs. E. K. Dawson, of Edinburgh, and £50 to Mr. Nevill Willmer, of Cambridge.

Sir Charles Gordon-Watson, as chairman of the investi tion committee, reported in detail the whole of the inve gations which had been made by the campaign in connexi with the diagnostic claims of Dr. Bendien, of Zeist, Holla He pointed out that Dr. Bendien had never made cla concerning the treatment of cancer.

A vote of grateful thanks was accorded by the Council Sir William Morris for having given £25,000 to the camp for the establishment of a radiological research fellow at Mount Vernon Hospital. The work to be carried under the fellowship will be both of a clinical and laborato nature.

Society of Medical Officers of Health.

By invitation of Sir Ernest Debenham the metropolit branch of this society visited Bladen Dairies, at Milbor St. Andrew, Blandford, Dorset, on Nov. 5th. The dair which is capable of handling some 20,000 gallons a da collects milk from about 90 farms in the neighbourhoo pasteurises it by the holding method, and dispatches it cartons to London, Bournemouth, and other centres. glass bottle containing half a pint of milk weighs abo 22¼ oz., whereas a carton with the same content wei only 11 oz. The weight of the bottle and the carton respectively about 12¼ oz. and ¾ oz. The approxim price of a carton holding a pint is ½d., and it is believed t allowing for breakages and washing, the daily cost of g bottles is about as much. Small cartons containing one-th of a pint, and intended for school-children, are obtain for 1*d.* The milk is sold in London through grocers other shops. The incidence of breakages is stated to about ¼ per cent.

Sir Ernest Debenham said that he started farming years ago with a bias towards providing clean milk. had maintained tubercle-free herds all the time, exc during the war, but was "a little disillusioned" ab certified milk. Whatever was done there were always or two reactors in the herd, and with the greatest poss cleanliness the consumer was not protected against poss non-tuberculous infections of cow or cowman. Hav failed to find distributors who would sell his certified at 8*d.* a quart in summer and 9*d.* in winter, he sta supplying Grade A milk to Bournemouth and Dorche in bottles. But these were too expensive to send by and though they could be sterilised he was doubtful wheth they could be effectively cleaned. A representative was to America to study the cartons, and they were adopte Dr. G. Clark Trotter, president of the branch, said he belie that "wrapped milk" had come to stay. He hoped th the Government would help in the establishment of m factories in clean country surroundings.

At Bladen Dairies the incoming milk is freque examined by the reductase fermentation test, and on th test and the state of the curd, marks are awarded to t farmers. The first 12 each month get ½*d.* a gallon ex for their milk, and the second 12 get ¼*d.* Samples taken from the milk as it leaves the dairy, and also samp of the milk which first passes through the plant in th morning. The pipes and containers are washed and th sterilised by steam for 20 minutes before and after wo Besides milk, Bladen Dairies produce Cheddar cheese, an are endeavouring to find adequate markets for dried whe which they prepare in a partial vacuum at low temperatu The chief by-product of cheese-making is lactose, and Ernest Debenham expressed regret that the medical pr fession did not recommend it more freely in artificial feedi New Zealand, with a population of 2 millions, uses 250 to a year, he said, whereas England, with 45 millions, consum only 500 tons, half of which comes from Holland. Dri milk is also being made at Bladen Dairies on an experiment basis.

ledico-Chirurgical Society of Edinburgh.

The following are the office-bearers of this society for e coming year. President: Mr. George L. Chiene. e-presidents: Dr. E. F. Armour, Dr. J. M. Bowie, and r. A. H. H. Sinclair. Councillors: Dr. F. K. Kerr, Dr. S. Carmichael, Dr. H. Maitland Moir, Mr. A. Pirie Watson, . Lewis Thatcher, Dr. Douglas Guthrie, Dr. T. W. E. ss, Dr. H. L. Watson Wemyss. Treasurer: Dr. John r. Secretaries: Mr. F. E. Jardine and Dr. W. A. xander. Editor of Transactions: Dr. Fergus Hewat.

yal Northern Hospital.

Post-graduate courses begin at the Royal Northern up of hospitals next Tuesday, Nov. 17th, when Dr. A e Punch will speak on the Technique of Lipiodol Injec- ns. Lectures and demonstrations will be given on sday afternoons at 3.15 P.M., and from Jan. 18th to d there will be an intensive course occupying morning d afternoon. All the lectures and demonstrations are n to practitioners without fee. Application should made to the Dean, Dr. E. G. B. Calvert, at the Royal then Hospital, London, N. 7.

earch in Mental Pathology.

n election to the Pinsent-Darwin studentship in mental hology will be made next December. The studentship s the annual value of not less than £200, and is tenable three years. The student must engage in original arch into any *problem* having a bearing on mental ts, diseases, or disorders, but may carry on educational other work concurrently. Applications for appointment ld be sent in proper form to the secretary, Pinsent- win Studentship, Psychological Laboratory, Cambridge, ore Dec. 5th.

PARLIAMENT

NOTES ON CURRENT TOPICS.

OPENING OF PARLIAMENT.

N Tuesday, Nov. 10th, the new Parliament was ned in State by the King, who was accompanied the Queen, the Prince of Wales, the Duke of York, the Duke of Gloucester.

is Majesty, in the course of the Gracious Speech m the Throne, said that the Government intended pursue the policy of promoting peace and goodwill to continue their active interest in the work of League of Nations. Particularly they were giving e attention to the preparation for the approaching armament Conference. The serious financial and nomic situation of the world deeply concerned the vernment. They would do their utmost in peration with other Governments, and in the rit of mutual helpfulness, to find ways for restoring volume of international trade. After expressing es for the success of the Indian Round Table nference, and the Conference with representatives Burma, the Gracious Speech went on to refer to neasure which is to be laid before Parliament to e statutory effect to the declarations and resolutions the Imperial Conferences of 1926 and 1930. This asure is designed to make clear the powers of minion Parliaments and to promote the spirit free coöperation amongst members of the British mmonwealth of Nations. The Government had eived from the Government of Canada a proposal t the Economic Conference, which was adjourned 1930, should be convened at Ottawa as soon as sible. This invitation had been welcomed by the perial Government and would be considered in most sympathetic spirit and with an earnest ire to come to some mutually advantageous angement with the Governments of the Dominions. a passage addressed to the Members of the House Commons the Gracious Speech stated that the tion at the General Election had endorsed those asures for securing economy and balancing the tional budget which constituted the first essential ps in the solution of the financial and economic oblems with which the country had been confronted. e nation was also invited by the Government to power them to pursue a policy designed fully to establish confidence in the financial stability of the country and to give them authority to frame plans for ensuring a favourable balance of trade. They further sought from the nation unfettered discretion to consider every proposal likely to be of assistance in these matters. The Government had now received a clear and emphatic mandate to that effect. The important problems involved were already under detailed examination by the Government. Decisions would be taken and applied with the least possible delay, and in due course any legislation that might be required would be submitted to Parliament.

Later in the day the Debate on the Address, thanking His Majesty for his Gracious Speech from the Throne, was opened in both Houses of Parliament. In the House of Commons the Address was moved by Mr. GEOFFREY LLOYD and seconded by Mr. FLINT. In the course of the debate in the Commons, Mr. RAMSAY MACDONALD, Prime Minister, in reply to Mr. LANSBURY, Leader of the Opposition, stated that the question of the Prolongation of Health Insurance Bill had not been overlooked by the new Government. He hoped that the Minister of Health would be in a position to make a statement on the subject at the end of the week.

The Address was moved in the House of Lords by the Earl of RADNOR and seconded by Viscount COWDRAY.

Medical Diary

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
TUESDAY, Nov. 17th.—5.30 P.M., GENERAL MEETING OF
FELLOWS. Ballot for election to the Fellowship.
8 P.M., PATHOLOGY.
THURSDAY.—5 P.M., DERMATOLOGY (Cases at 4 P.M.).
Dr. W. K. Sibley: 1. Erythema perstans. Mr.
H. D. Haldin-Davis: 2. Alopecia Areata in a Child
of Nine Weeks. 3. Macular Atrophy of the Skin.
Other cases will be shown. 8.30 P.M., NEUROLOGY.
Discussion: The Innervation of the Bladder. Openers:
Dr. J. R. Learmonth (Mayo Clinic), Dr. P. C. Cloake,
Mr. F. J. F. Barrington. UROLOGY. Members of this
Section are specially invited to attend.
FRIDAY.—5 P.M., PHYSICAL MEDICINE (Cases at 5.30 P.M.).
Clinical meeting at the British Red Cross Society Clinic
for Rheumatic Diseases, Peto-place, Marylebone-road,
N.W. Mr. A. Woodmansey: Catalysis in Relation to
Mineral Waters. Cases will be shown. 8.15 P.M.,
OBSTETRICS AND GYNÆCOLOGY. Short communication:
Dr. Louisa Martindale: Recent Advances in Deep
X ray Therapy in Gynæcological Conditions. Paper:
Dr. Bethel Solomons: Obstetric Methods at the
Rotunda Hospital in 1909 and 1929. 8.30 P.M.,
RADIOLOGY. Discussion: X ray Diagnosis of Diseases
of the Chest. Opening papers: Dr. Stanley Melville:
Tuberculous and Other Non-malignant Conditions.
Dr. Peter Kerley: Malignant Conditions. Followed
by Dr. F. G. Chandler, Dr. Maurice Davidson, Mr.
Tudor Edwards, Dr. R. E. Roberts, Mr J. B. Hunter,
and others. MEDICINE. Members of this Section are
specially invited to attend.

HARVEIAN SOCIETY.
THURSDAY, Nov. 19th.—8.30 P.M. (at 11, Chandos-street,
W.), Prof. D. P. D. Wilkie: Surgery of the Spleen.

HUNTERIAN SOCIETY.
MONDAY, Nov. 16th.—9 P.M. (at the Apothecaries Hall,
Water-lane, E.C.). Discussion on the Medical Aspects
of Crime in Fact and Fiction. Dr. Norwood East,
Dr. Edwin Smith, Mr. C. J. S. Thompson, and others
will take part in the discussion.

CHELSEA CLINICAL SOCIETY, Hotel Rembrandt, Thurloe-
place, S.W.
TUESDAY, Nov. 17th.—8.30 P.M., preceded by dinner at
7.30 P.M., Discussion on The Medicinal Uses of Wines.
(To be opened by Mr. Charles Berry and Dr. G. Murray
Levick.)

ROYAL SOCIETY OF TROPICAL MEDICINE AND
HYGIENE.
THURSDAY, Nov. 19th.—8.15 P.M. (at the Hospital for
Tropical Diseases, Endsleigh-gardens), Clinical and
Laboratory Meeting. The following amongst others
with give Demonstrations: Drs. C. Russell Amies,
H. A. Baylis, G. R. Mather Cordiner, N. Hamilton
Fairley, Colonel Clayton Lane (for Prof. F. W.
O'Connor), Drs. G. Carmichael Low, P. Manson-Bahr,
and Sir Leonard Rogers.

ROYAL MICROSCOPICAL SOCIETY, B.M.A. House,
Tavistock-square, W.C.
WEDNESDAY, Nov. 18th.—5 for 5.30 P.M., Mr. Conrad Beck:
The Substage Diaphragm and its Functions. Dr. A. A.
Tarkhan: *Effect of Fixatives and other Reagents on*
Cell-size and Tissue-bulk.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Nov. 16th to SATURDAY, Nov. 21st.—CITY OF LONDON HOSPITAL FOR DISEASES OF THE HEART AND LUNGS, Victoria Park, E. Special post-graduate Course in Diseases of the Chest. All-day.—LONDON LOCK HOSPITAL, Dean-street, W. Post-graduate course in Venereal Disease. Every afternoon. Fee £2 2s.—ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, Broad-street, W.C. Post-graduate Course in Ophthalmology, Clinical instruction every afternoon 2.30 to 4.30 P.M. Special demonstrations on Mondays, Wednesdays, and Thursdays, at 5 P.M.—ROYAL WATERLOO HOSPITAL, Waterloo-road, S.E. All-day post-graduate Course in medicine, surgery, and gynecology. Demonstrations and lectures.—MEDICAL SOCIETY OF LONDON, Chandos-street, Cavendish-square. Free lecture on Wed. at 4 P.M. on Glycosuria by Dr. Isaac Jones (deputising for Prof. H. MacLean).—In connexion with the M.R.C.P. evening lectures: on Monday, Nov. 16th, at 8.30 P.M., Dr. Roodhouse Gloyne: The Clinical Pathology of Tuberculosis, and on Wed., at 8.30 P.M., Dr. W. J. Adie: Diseases of the Nervous System (1).—KING'S COLLEGE HOSPITAL, Denmark-hill, S.E. Demonstration (free) by Dr. S. A. Kinnier Wilson in Out- and In-patient Departments at 2 P.M. on Tues.—ROYAL EYE HOSPITAL, St. George's-circus, S.E. Free demonstration by Mr. A. D. MacCallan of Clinical Cases at 4.15 P.M. on Thurs.—Further particulars from the Fellowship of Medicine.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

MONDAY, Nov. 16th.—10 A.M., Gynæcological Wards; Genito-urinary Operations; Skin Department. 11 A.M., Surgical Wards. 2 P.M., Surgical Wards; Medical, Surgical, Eye, and Gynæcological Out-patients.

TUESDAY.—9.30 A.M., Operations. 10 A.M., Medical Ward Demonstration; Dental Department. 11 A.M., Throat Operations. 11.30 A.M., Surgical Demonstration. 2 P.M., Operations; Medical, Surgical, and Throat Out-patients.

WEDNESDAY.—10 A.M., Medical Wards; Children's Medical Out-patients. 2 P.M., Medical, Surgical, and Eye Out-patients. 2.30 P.M., Gynæcological Operations. 4.45 P.M., Venereal Diseases Demonstration.

THURSDAY.—10 A.M., Neurological Department. 11.30 A.M., Fracture Demonstration. 2 P.M., Medical, Surgical, Eye, and Genito-urinary Out-patients. 2.30 P.M., Operations.

FRIDAY.—10 A.M., Medical Wards, Skin Department, Dental Department. 2 P.M., Medical, Surgical, and Throat Out-patients. 2.30 P.M., Operations.

SATURDAY.—9 A.M., Throat Operations. 10 A.M., Medical Wards. Surgical Out-patients: Children's Medical Out-patients.

NATIONAL HOSPITAL, Queen-square, W.

MONDAY, Nov. 16th.—2 P.M., Dr. Riddoch: Out-patient Clinic. 3.30 P.M., Dr. Kinnier Wilson: Cerebral Tumours (1).

TUESDAY.—2 P.M., Dr. Walshe: Out-patient Clinic. 3.30 P.M., Dr. Critchley: The Parkinsonian Syndrome (1).

WEDNESDAY.—2 P.M., Dr. Martin: Out-patient Clinic.

THURSDAY.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Mr. Julian Taylor: Head Injuries (1).

FRIDAY.—2 P.M., Dr. Adie: Out-patient Clinic. 3.30 P.M., Dr. Collier: Nervous Complications of Blood Diseases.

UNIVERSITY COLLEGE, Gower-street, W.C.

TUESDAY, Nov. 17th.—3 P.M., Mr. W. Stephenson: Clinical Mental Tests.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL, Denmark-hill, S.E.

THURSDAY, Nov. 19th.—9 P.M., Sir John Thomson Walker: Stone in Kidney and Bladder.

ST. PAUL'S HOSPITAL, Endell-street, W.C.

WEDNESDAY, Nov. 18th.—4.30 P.M., Dr. R. H. J. Swan: Renal Tuberculosis.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James' Hospital, Ouseley-road, Balham, S.W.

WEDNESDAY, Nov. 18th.—4 P.M., Mr. Edward D. Davis: Otitis Media.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.

TUESDAY, Nov. 17th.—3.15 P.M., Dr. A. Lisle Punch: The Technique of Lipiodol Injections.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY, Nov. 17th.—5 P.M., Dr. H. W. Barber: Bacteriology and Mycology.

THURSDAY.—5 P.M., Dr. I. Muende: Pathology Demonstration.

ST. MARK'S HOSPITAL, City-road, E.C.

THURSDAY, Nov. 19th.—4.30 P.M., Mr. J. K. Hasler: Methods of Anæsthesia for Rectal Surgery.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.

WEDNESDAY, Nov 18th.—4 P.M., Mr. P. O'Connell Finigan: Oral Infection in Relation to General Disease.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY, Nov. 20th.—4 P.M., Mr. A. Ryland: Demonstration of Museum Specimens.

CHADWICK PUBLIC LECTURES.

WEDNESDAY, Nov. 18th—5.15 P.M. (at 90, Buckingham Palace-road), Dr. G. Slot: Diet and Hygiene.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russel square, W.C.

WEDNESDAY, Nov. 18th.—4 P.M., Dr. Chalmers Watso The Food of the Citizen.

THURSDAY.—4 P.M., Sir Arbuthnot Lane: The Gener Practitioner and Contraceptive Technique.

BRITISH INSTITUTE OF RADIOLOGY, Welbeck-street,

THURSDAY, Nov. 19th.—8.30 P.M., Dr. Ffrangcon Robert Some Criticisms of the International Protecti Recommendations. Dr. G. E. Vilvandré: Radiology of Gallstones and the Gall-bladder.

FRIDAY.—11 A.M., Visit to St. Peter's Hospital for Sto Covent Garden, W.C.—5 P.M. (at the Institu Cases. 5.30 P.M., Mr. David Levi and Dr. H. Court Gage: Gastrophotography (Demonstration).

UNIVERSITY OF SHEFFIELD.

FRIDAY, Nov. 20th.—3.30 P.M. (at the Royal Infirmar Dr. R. Hallam: Some Common Skin Diseases.

MANCHESTER HOSPITAL FOR CONSUMPTION, Hardma street, Deansgate.

WEDNESDAY, Nov. 18th.—4.30 P.M., Mr. E. S. B. Hamilt Vertigo.

WESTERN INFIRMARY, Glasgow.

WEDNESDAY, Nov. 18th.—4.15 P.M., Mr. Logan Tay Surgical Cases.

THE FACULTY HALL, St. Vincent-street, Glasgow.

TUESDAY, Nov. 17th.—4 P.M., Prof. J. M. Munro-Ke Antenatal Care of the Expectant Mother.

MANCHESTER VICTORIA MEMORIAL JEWISH H PITAL, Elizabeth-street.

WEDNESDAY, Nov. 18th.—4.30 P.M., Mr. V. F. Lamb The Treatment of Acute Inflammation of the N Sinuses.

MANCHESTER ROYAL INFIRMARY.

TUESDAY, Nov. 17th.—4.15 P.M., Mr. J. P. Buckl The Argument for and Against Gastro-Enterosto

FRIDAY.—4.15 P.M., Dr. E. B. Leech: Demonstratio Medical Cases.

UNIVERSITY OF LIVERPOOL.

THURSDAY, Nov. 19th.—4 P.M. (in the Medical Scho Sir Robert Jones: Problems of the Stiff Joint (Willi Mitchell Banks Memorial Lecture).

ANCOATS HOSPITAL, Manchester.

THURSDAY, Nov. 19th.—11 A.M., Mr. F. H. Diggle: Clin Demonstration. 4.15 P.M., Dr. N. Kletz: Affecti of the Colon.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK END OCT. 31ST, 1931.

Notifications.—The following cases of infectio disease were notified during the week: Small-po 42 (last week 39); scarlet fever, 1831; diphther 996; enteric fever, 30; pneumonia, 848; puerpe fever, 44; puerperal pyrexia, 94; cerebro-spi fever, 12; acute poliomyelitis, 11; acute po encephalitis, 1; encephalitis lethargica, 7; dysent 16; ophthalmia neonatorum, 75. No case of chol plague, or typhus fever was notified during the we

The number of cases in the Infectious Hospitals of London County Council on Nov. 3rd–4th was as follo Small-pox, 101 under treatment, 6 under observat (last week 78 and 4 respectively); scarlet fever, 18 diphtheria, 1505; enteric fever, 15; measles, 197; whoop cough, 376; puerperal fever, 16 (plus 11 babies); ence litis lethargica, 220; poliomyelitis, 7; "other dise 158. At St. Margaret's Hospital there were 9 babies (5 mothers) with ophthalmia neonatorum.

Deaths.—In the aggregate of great towns, includ London, there was no death from small-pox, 1 from enteric fever, 21 (2) from measles, 5 (1) fr scarlet fever, 15 (4) from whooping-cough, 23 from diphtheria, 66 (15) from diarrhœa and enteri under two years, and 48 (4) from influenza. Th figures in parentheses are those for London itself.

Stoke-on-Trent reported the only fatal case of ente fever. Four deaths from measles were reported at the sa town, 3 each at Bolton and Middlesbrough, 2 at Manche Liverpool and Manchester each reported 2 deaths fr whooping-cough. Diphtheria claimed 3 victims at Liverp and Hull, 2 at Stockport. Diarrhœa was credited wi 6 deaths at Liverpool, 4 at Stoke-on-Trent, 3 each Birmingham, Manchester, Leeds, and Hull.

The number of stillbirths notified during the week wa 253 (corresponding to a rate of 40 per 1000 birth including 36 in London.

ABERDEEN UNIVERSITY CLUB, LONDON.—The eighty-sixth half-yearly dinner of this club will be held the Trocadero Restaurant at 7 for 7.30 P.M. on Thursday Nov. 26th, under the chairmanship of Mr. D. M. Cowan, M.P. The secretary's address is 9, Addison-gardens, W. 14.

NOTES, COMMENTS, AND ABSTRACTS

PATHOLOGICAL SPECIMENS SENT BY POST.

THE Postmaster-General draws our attention to the fact that pathological specimens have been observed in the post not packed in accordance with the postal requirements, and, moreover, sent by parcel post. In view of the risks thereby incurred by officers of the post office, we are asked to draw attention to the following regulations :—

Deleterious liquids or substances, though otherwise prohibited from transmission by post, may be sent for medical examination or analysis to a recognised medical laboratory or institute, whether or not belonging to a public health authority, or to a qualified medical practitioner or veterinary surgeon within the United Kingdom, by *letter post, and on no account by parcel post*, under the following conditions :—

Any such liquid or substance must be enclosed in a receptacle, hermetically sealed or otherwise securely closed, which receptacle must itself be placed in a strong wooden, leather, or metal case in such a way that it cannot shift about, and with a sufficient quantity of some absorbent material (such as sawdust or cotton-wool) so packed about the receptacle as absolutely to prevent any possible leakage from the package in the event of damage to the receptacle. The packet so made up must be conspicuously marked "Fragile with care," and bear the words "Pathological Specimen."

Any packet of the kind found in the parcel post, or found in the letter post not packed and marked as directed, will be at once stopped and destroyed with all its wrappings and enclosures. Further, any person who sends by post a deleterious liquid or substance for medical examination or analysis otherwise than as provided by these regulations is liable to prosecution. If receptacles are supplied by a laboratory or institute, they should be submitted to the Secretary, General Post Office, in order to ascertain whether they are regarded as complying with the regulations.

A SUPPLY OF RADIUM.

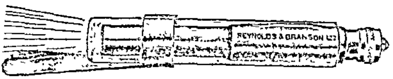
Messrs. Derby and Co. (27, Finsbury-square, London, E.C. 2) inform us that they always have a hold of a sufficiently large quantity of radium to be in a position to deliver, within about three months, anything up to 2 g. in the form of sulphate, bromide or chloride, the present price being $56.50 per milligramme element. Although a certain quantity of radium is available for prompt delivery, it requires about 13 weeks for an accurate measurement to be taken, during which time any orders for the containers into which the radium has to be filled can be carried out. They have at the moment 100–200 milligrammes of radium available, made up into needles of two sizes: (1) containing 0·6 mg. of element: length, 16 mm.; external diameter, 1·85 mm.; screenage, 0·6 mm. (2) Containing 3 mg. of element: length, 59 mm., with same external diameter and screenage. Radium needles are hired to hospitals and practitioners for periods of 48 hours to one month. They also supply radon centres with seeds in gold, silver, and platinum, varying in size from 0·3 to 0·5 mm. wall thickness, and generally in 6 mm. lengths. They purchase second-hand parcels of radium, and make a specialty of filling and redistributing radium containers.

THE MOST NEARLY PERFECT FOOD.

IN this little book[1] of just under 300 pages the authors have made good their claim to tell a readable story of the use of milk throughout the ages. Lecturers and others engaged in the "drink more milk" campaign should find the facts given extremely handy. Although the authorities quoted and the bibliography are almost entirely American, the lessons to be learnt apply even more forcibly to this country than in the U.S.A., as a table shows that the consumption of milk per head in the U.S.A. is almost double that of Great Britain. The question of how to get clean and safe milk is clearly dealt with. The advantages of the various forms of milk are discussed with moderation, and most of the useful milk products are referred to. We noted, however, no reference to the pleasant and safe method of consuming one's milk quota in the form of Devonshire cream and scald milk; or to the "iron cow," which now supplies milk and cream to the great satisfaction of passengers on most of our principal liners. One chapter is devoted to the home care of milk, and practical milk recipes acceptable to the housewife.

AN ELECTRIC TONGUE-DEPRESSOR.

Dr. F. W. Cory sends us the accompanying illustration of a tongue-depressor which he finds useful in examining the pharynx, especially of children. "The sliding spatula," he says, "is adjusted to the right position, the light is switched on and it is shown to the child who is at once interested. He is then asked to open his mouth, the tongue is depressed, and a second only is required to see all that is necessary. The torch is removed from the glass sheath, the latter with the tongue-depressor; both are immersed in boiling water and sterilised in a few minutes, then wiped with a clean towel or handkerchief. The torch is reinserted, the tongue-depressor retracted on tube, making a portable package for the pocket. The light is easily switched on and off and the dry battery will last some time." Dr. Cory mentions that the instrument may also be used in vaginal examination. It is made by Reynolds and Branson, Ltd., 13, Briggate, Leeds.



THE EDINBURGH F.R.C.S.

Dr. Mary Keith-Thompson, sometime on the staff of Lady Hardinge Medical College and Hospital at Delhi, has written a little guide for doctors from abroad who want to take the Edinburgh F.R.C.S., and who, she says, usually waste at least three months for want of proper guidance in their post-graduate studies. She deals with questions such as: how much time and money are required, when to arrive in Edinburgh, and where to stay, whether to choose a special subject for the examination, what classes to take, and what books to read. She remarks on the difficulty which women graduates find in obtaining suitable lodgings in Edinburgh when they desire to take the higher diplomas, and she thinks there should be a hostel for women post-graduate students in Edinburgh. The booklet is issued by Messrs. Thacker, Spink and Co., Ltd., Calcutta. (pp. 29, 3*s*.).

SMOKE ABATEMENT.

THE National Smoke Abatement Society has produced a valuable little book of reference for those who are called upon to speak or write on the subject of smoke abatement. This pamphlet[1] sets out in a handy form, at an extremely moderate price, a quantity of up-to-date information which has never hitherto been made available in one small volume. There are brief summaries under such headings as the Causes and Nature of Smoke; the Cost of Smoke; the Effects of Smoke upon Buildings; Health and Vegetation; English and Scottish Law in Relation to Smoke; and Smokeless Fuels. There is also a small bibliography, a chronological historical table' and a list of local authorities affiliated with the Society and their representatives. Some of the abstracts are signed; Dr. J. R. Ashworth, for instance, writes on the measurement of atmospheric pollution and on ultra-violet light and atmospheric pollution; Dr. J. S. Taylor on smoke and health; and Dr. Margaret Fishenden on low-temperature carbonisation. The pamphlet is for reference rather than for reading through, an intention which may perhaps justify the use of such small print. It will certainly be useful to those who need a backing of figures and facts for their appeals in this good cause.

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[1] By Samuel J. Crumbine, M.D., of the American Child Health Association, and James A. Tobey, Dr.P.H., author of "The Quest for Health." Baltimore, U.S.A.: Williams and Wilkins Co. $2.50.

[1] The Smoke Abatement Handbook, obtainable from the National Smoke Abatement Society, 23, King-street, Manchester. Pp. 48. 6*d*.

ELECTRIC PIANOS.

Dr. A. H. Wilson writes: "With reference to Dr. Dunne's letter in THE LANCET of Oct. 31st concerning an electric piano which he won as a second prize in a certain Spanish lottery, it may be of interest to know that I, also, won a second prize —an 'electrick piano'—in the very same lottery. I have now only to mention the fate of that piano: it is remaining in Spain, whilst the £2 10*s*. 3*d*. is remaining in England."

Appointments

ROCHE, ALEX. E., M.D., M.Ch. Camb., F.R.C.S. Eng., has been appointed Honorary Assistant Surgeon to the Genito-urinary Department, West London Hospital.

THOMSON, A., Certifying Surgeon under the Factory and Workshop Acts for the Falmouth District of the County of Cornwall.

Vacancies

For further information refer to the Advertisement columns.

Aberdeen Royal Mental Hospital.—Jun. Asst. P. £300.
Altrincham General Hospital.—Jun. H.S. At rate of £120.
Archway Hospital, Archway-road, Highgate, N.—Res. Med. Supt. £1000.
Bedford County Hospital.—1st H.S. At rate of £165.
Brighton, Royal Alexandra Hospital for Sick Children.—H.S. £100.
Brighton, Royal Sussex County Hospital.—Jun. Asst. Pathologist. £300.
Cancer Hospital, Fulham-road, S.W.—H.S. At rate of £100.
Cardiff Royal Infirmary.—H.S. to Ophthalmic Department. At rate of £75.
Cardiff, University College of South Wales and Monmouthshire. Lecturer and Demonstrator in Anatomy. £500.
Chelsea Hospital for Women, Arthur-street, S.W.—Jun. H.S. At rate of £100.
City of London Hospital for Diseases of Heart and Lungs, Victoria Park, E.—Res. M.O. £250. Also H.P. At rate of £100.
Dewsbury County Borough.—M.O.H. and School M.O. £900.
Eastbourne, Princess Alice Memorial Hospital.—Hon. Consulting Ear, Nose and Throat Surgeon.
East Ham Memorial Hospital, Shrewsbury-road, E.—Phys. to Skin Dept.
East London Hospital for Children, Shadwell, E.—Res. M.O. £200.
Elizabeth Garrett Anderson Hospital, Euston-road.—H.P. Obstet. Asst. and 2 H.S.'s. All at rate of £50. Also Clin. Assts.
Hellingley, East Sussex County Mental Hospital.—Jun. Asst. Res. M.O. £350.
Hospital for Epilepsy and Paralysis, Maida Vale, W.—H.P. At rate of £100.
Hospital for Sick Children, Great Ormond-street, W.C.—H.P. and H.S. Each at rate of £100. Also Clin. Assts. to Outpatient Department.
Hospital for Women, Soho-square, W.—Pathologist and Registrar. £100.
Infants Hospital, Vincent-square, Westminster.—Pathologist. £300.
Jersey General Hospital and Poor-law Infirmary.—Res. M.O. £200.
Khartoum, Wellcome Tropical Research Laboratories.—Bacteriologist. £E.660.
Lancaster, County Mental Hospital.—Asst. M.O. £500.
L.C.C.—Consulting Dental Surgeon. £400.
Leicester, Leicestershire and Rutland Mental Hospital, Narborough. Asst. M.O. £350.
Lister Institute of Preventive Medicine, Chelsea Bridge-road, S.W.—Research Fellowship in Bacteriology. £500.
Liverpool, Alder Hey Children's Hospital.—Res. Asst. M.O. £200.
Liverpool, Southdown-road Hospital.—Res. Asst. M.O. £200.
Liverpool and District Hospital for Diseases of the Heart.—H.P. At rate of £100.
Manchester Royal Infirmary, Central Branch, Roby-street.—H.S. At rate of £100.
Manchester, St. Mary's Hospital.—H.S. at Whitworth Park Branch. At rate of £50.
Margate and District General Hospital.—Res. M.O. £150.
Mount Vernon Hospital, Northwood, Middlesex.—Res. M.O. £250.
National Hospital, Queen-square, W.C.—Hon. Asst. Radiologist.
New Zealand, University of Otago and Dunedin Hospital.—Sen. Res. Surg. and Medical Officers. Each £500.
Oldham County Borough Education Committee.—Asst. School's M.O. £500.
Oxford, Radcliffe Infirmary and County Hospital.—Hon. Phys., Hon. Asst. Phys., and Hon. Asst. Radiologist.
Plymouth, South Devon and East Cornwall Hospital.—Radium Officer. £600. Also Res. Surg. O. and H.P. At rate of £150 and £120 respectively. Also H.S. £100.
Preston, Biddulph Grange Orthopædic Hospital.—Sen. and Jun. H.S. At rate of £250 and £150 respectively.
Queen's Hospital for Children, Hackney-road, E.—H.P. and Cas. O. Each at rate of £100.
Reading, Royal Berkshire Hospital.—Res. M.O. for Blagrave Branch Hospital. At rate of £150.
Rotherham County Borough.—Tuberculosis Officer, &c. £600.
Rotherham Hospital.—Sen. H.S. £200.
Royal College of Surgeons of England.—Election to Court of Examiners.
Royal National Orthopædic Hospital, 234, Great Portland-street, W.—Med. Registrar. £150.
Royal Naval Medical Service.—Medical Officers.
Ryde, Royal Isle of Wight County Hospital.—Res. H.S. £150.
Sheffield University.—Chair of Pathology.
St. Helens Hospital, Lancs.—H.S. £200.
St. Mary's Hospital, Institute of Pathology and Research, Paddington, W.—Research Studentship. £200.
St. Mary's Hospital, W.—Hon. Orthopædic Surgeon.
St. Thomas's Hospital Medical School, S.E.—Professor for the University Chair of Medicine. £2000. Also Pathologist to Medical and Surgical Units. £400.
Salisbury, General Infirmary.—Two H.S.'s. Each £150.
Salop, Cheshire Joint Sanatorium, Market Drayton.—H.P. £250.
Sheffield Royal Hospital.—Two Asst. Cas O.'s and Res. Anæsthetist. Each at rate of £80.
Taunton and Somerset Hospital.—Jun. House M.O. At rate of £100.
Truro, Royal Cornwall Infirmary.—H.S. £170.
Wakefield, Clayton Hospital.—H.S. At rate of £200.
Wolverhampton, New Cross Hospital.—Asst. Res. M.O. £200.
Wrexham and East Denbighshire War Memorial Hospital.—Two Res. H.S.'s. Each at rate of £150.
York County Hospital.—H.S. to Ear, Eye, Nose, and Throat Dept. £150.

The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at Stratton (Cornwall) and at Walsall (Staffs).

The Home Secretary gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act for the Districts of Daventry and Rugby County Courts, and also for the District of Barrow-in-Furness, &c., Circuit No. 1. Applications should reach the Private Secretary, Home Office, Whitehall, London, S.W., not later than Nov. 21st.

Births, Marriages, and Deaths

BIRTHS.

BAIN.—On Nov. 4th, at Straymede, York-place, Harrogate, the wife of Dr. Curtis Bain, of a daughter.
RICHARDS.—On Nov. 8th, at Forbes Fraser Hospital, Bath, the wife of Dr. W. K. A. Richards, of Westbury, Wilts, of a son.
SIMPSON.—On Nov. 5th, the wife of Dr. James D. Simpson, Bridge-street, Cambridge, of a son.
TAYLOR-YOUNG.—On Nov. 5th, at The Red House, Park-lane, Salisbury, the wife of H. S. Taylor-Young, F.R.C.S., of a daughter.

DEATHS.

ALDRED.—On Nov. 7th, Wilfrid Ashwell Aldred, M.R.C.S., The Grange, Wroxham, Norfolk, aged 51.
GYTON.—On Nov. 5th, 1931, at 273, Lavender-hill, S.W.11, Walter G. Gyton, M.R.C.S., L.R.C.P., aged 78 years.
POLLARD.—On Nov. 5th, a few days before his 76th birthday, at St. Winifred's-road, Bournemouth, Bilton Pollard, M.D., F.R.C.S., Consulting Surgeon to University College Hospital, London, and to Queen's Hospital for Children, London.
RICE.—On Nov. 3rd, at Palace Cottage, Crediton, Devon, George Rice, M.D., Consulting Physician, Derbyshire Royal Infirmary.
ROBINSON.—On Nov. 6th, at Burnham Overy, Norfolk, Thomas Robinson, M.R.C.S., D.P.H., of Scraptoft Vicarage, Leicestershire, formerly County Medical Officer for Leicestershire.
SEYMOUR.—On Nov. 6th, at Westgate-on-Sea, Dr. Thomas Peacock Seymour, late of Tiverton, Devon, and Captain R.A.M.C., aged 53 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages and Deaths.

MATERNITY HOME AT LEIGH.—Mrs. Higgenbotham, mayoress of Leigh (Lancashire) has formally opened a new maternity home, installed in the former residence of Sir George Holden. There is accommodation for 18 cases, with a nursery, and the cost of adaptation has been £1150. The property cost £4000 to purchase.

ADDRESSES AND ORIGINAL ARTICLES

PREVENTIVE MEDICINE FOR THE MEDICAL STUDENT.*

BY SIR GEORGE NEWMAN, K.C.B., M.D. EDIN.,
F.R.C.P. LOND.,
CHIEF MEDICAL OFFICER OF THE MINISTRY OF HEALTH AND BOARD OF EDUCATION; CROWN NOMINEE ON THE GENERAL MEDICAL COUNCIL.

MY subject is preventive medicine in relation to the course of study now followed in the medical schools in England, particularly the London schools, and as it affects the medical practitioner.

FOUR QUESTIONS ASKED OF DOCTORS.

There are four questions which in some form or other every patient asks of his doctor:

(a) What is the matter with me? This is *diagnosis*.

(b) Can you put me right? This is *treatment* and *prognosis*.

(c) How did I get it? This is *causation*.

(d) How can I avoid it in future? This is *prevention*.

It is clear, therefore, that the corpus of knowledge which the doctor possesses must include the information which will provide effective and practical answers to these four questions. He may not be called upon to attempt a full answer to his patient, but he must give a fair working answer to himself.

It is obvious that in order to furnish an effective answer there must be both knowledge and experience, neither of which can be wholly of his own making. As life is short and art long, we must build our superstructure upon a foundation laid for us by others. In the early days it was held that it was sufficient for a student of medicine to be an apprentice to a practising doctor and "walk the hospitals." For thus he would learn at first hand by observation of Nature. It was Dr. P. M. Latham, physician to St. Bartholomew's Hospital, who long ago (1836) said this to his clerks:

> "In entering this place, even this vast hospital, where there is many a significant, many a wonderful thing, you shall take me along with you, and I will be your guide. But it is your own eyes, and your own minds, and (may I add) by your own hearts, that you must observe, and learn and profit: I can only point to the objects, and have little more to say than 'see here, and see there.'"

This wise remark remains true, but 100 years of medical advance have proved the necessity of a substantial knowledge of the human body before we can usefully "see here" or "observe there." The facts of anatomy must be acquired; still more must the student be grounded in physiology; and the functioning of the body is dependent upon chemistry and physics. And so in the course of time an elaborate curriculum of medical study has emerged, consisting of basic sciences followed by essential arts.

On the law of universal causation and on the assumption of uniformity in nature, the genius of Helmholtz in 1847 conceived the idea of the conservation of matter and of energy, a principle which has been recognised as holding good for the processes governing the living body. "There is no creation or destruction of matter in the body" said Starling. But the matter and energy of the body undergo alterations under varying conditions, either alteration of growth or of degeneration. Normally, as a result there is biological balance, equipoise, harmony, health of body. Preventive and "conservative" medicine is the science and art of maintaining that normality—by continuing or preserving its balance, by healing the impairments or damages due to stress or strain, to injury or disease, by preventing or modifying the factors and influences which lead to abnormality and by defending the body against them. This is the fundamental principle. For the body has its own innate and inherent defences, and these must be protected, developed, and fortified in order to increase its capacity and its powers of resistance. "Nature by herself determines diseases" said Sydenham "and is of herself sufficient in all things against all of them."

Yet the body is not alone, isolated by itself; it is part of Nature, surrounded by an environment, favourable or unfavourable. Perfect correspondence with a favourable environment would be, as Herbert Spencer said, perfect life. But we have got to find or create the appropriate environment and we have got to habituate the body to respond to it. For any departure from that relation is the beginning of disharmony, and the disturbance of biological harmony may be the beginning of disease. Disease is the reaction of the human body to irregularities in its internal or external environment. Metchnikoff said that disease was disharmony, and it has been truly described as the "dissociation of functional unity" of the body. It is not an entity, not a dragon or demon, outside the body. It is a disharmony within the body arising either from disturbed function or from abnormal condition of the structure of tissue, both of them caused by factors arising from irregularities in the "constant internal environment" of the body or belonging to the "variable external environment" which surrounds each of us—the climate in which we live, our nurture and upbringing, our home or workplace, our occupation or leisure pursuits, our dietary and clothing and habits. It was Claude Bernard who taught us that man has these two environments, an external variable in which he is situated, and an internal constant in which the tissue elements of his body live in a milieu formed by the circulating blood, a conception which since his day has received abundant confirmation not only from our fuller knowledge of the blood, but also from the endocrine glands and nervous regulation. "The internal environment which is maintained so constantly," says Prof. J. S. Haldane, "is in reality the expression of a balance between activities which disturb and activities which restore it." It is these two environments, the internal and the external, and their resultant, that we must observe if we would fulfil the principles of preventive medicine, for they form its justification and foundation.

INSEPARABLE PARTS OF MEDICINE.

Let us then look at the science and art of medicine as composed of three inseparable and interdependent parts:

(1) *Conservative Medicine*, the maintenance of health as the physiological balance. (This is called *Hygiene*.)

(2) *Preventive Medicine* as the specific means of avoiding or preventing disease and its sequelæ, either in the individual or in the community. (When applied to the community we call this *Public Health*.)

(3) *Remedial or Therapeutic Medicine and Surgery*, the relief and repair of the sick person and his return

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* Substance of an address recently delivered at Charing Cross Hospital Medical School.

from a pathological to a physiological life. (This is called *Curative Medicine.*)

This simple classification illustrates two points—viz., that preventive medicine is not synonymous with public health (which is indeed only its communal application), and that preventive medicine includes both the prevention of the initiation and beginnings of disease and the spread of infection, and also the prevention of the impairing and mortal sequelæ of disease, *if it exists*.

When we consider these three aspects and then look back on the medical curriculum we shall recognise that the teaching of medicine and its practice has been all too often preoccupied in a confused and unequal struggle with end-results. We have learned our anatomy from the dead rather than the living, though the morphology of the body and the inter-relation of its organs is different in the dead from the living. Hence we must correct our study of the anatomy of the dead by that of the living. We have learned our practice of medicine, like our pathology, too largely from final entities witnessed in the hospital ward. Yet disease is a process; and if we would change or escape the end-results, we must apply our preventive and curative medicine at an earlier stage, at the beginning of the disharmony and before structural change has occurred. We must give, in a word, more attention to conservative and preventive medicine if we would meet the whole demand of the patient. He wants to be cured indeed, but he also wants no recurrence. Preventive medicine is primarily concerned with the physiological life, capacity, and health of every man and not only the relief of the patient in private practice or in a hospital bed; secondly, it is a method of reducing sickness and postponing the event of death, and is thus the one great means of individual, national, and racial survival; and thirdly, it is, on ancient authority, the highest and wisest purpose of medicine, and it is now an obligation imposed in a variety of forms and degrees upon every practitioner by the State. It is significant that the law imposes no duty on a doctor to cure his patient, but he is directly charged with numerous statutory duties in behalf of prevention. Consider for a moment what is happening in England; leprosy, famine-fever, cholera, plague, and typhus have been conquered. Yet all of them have been dominant and terrible pestilences. We are the actual witnesses in our own day of an extraordinary control of small-pox, typhoid fever, chlorosis, pulmonary tuberculosis, rickets, and the epidemic enteritis of infants. The infant mortality-rate has fallen from 156 per 1000 births to 60 in a single generation, saving tens of thousands of children every year, a salvage which brings home its own train of problems. Now these amazing conquests are not victories of hospital treatment. They are the results of conservative and preventive medicine.

REVISION OF THE CURRICULUM.

When the General Medical Council revised the medical curriculum in 1922, it was faced with a score of Acts of Parliament imposing duties of preventive medicine upon the medical practitioner, and it was confronted with the enormous advances of preventive medicine in recent years Accordingly it was resolved by the Council to recommend "that throughout the whole period of study the attention of the student should be directed by his teachers to the importance of the preventive aspects of medicine." This was not a passing fancy or popular stunt. It was an imperative necessity, imposed by the demands now made upon scientific medicine and the requirements of the State. "That medical school which fails to-day to provide liberal instruction in preventive medicine," said Prof. Sedgwick, of Massachusetts, "is sending out its graduates *unprepared* for some of the most serious problems they will have to face in the immediate future." And recently Dr. Dingwall Fordyce, of Liverpool, has said that "the benefits which the community can derive from the most comprehensive efforts of a State department are unduly limited unless the whole profession of medical practitioners become the exponents of preventive as well as of curative medicine. It is altogether undesirable to separate curative and preventive medicine, and instruction in preventive medicine must be given to all medical students."

Let us see how this may be done, and without adding seriously to the present curriculum. First the outlines of the subject of hygiene and preventive medicine can be placed before the student in his fourth or fifth year of study by a series of two dozen lectures or demonstrations by a competent teacher. This method is followed in England, though less completely than in Germany, Holland, Denmark, and the best schools in America. In Great Britain it is more fully adopted in the provincial medical schools than in London, where such teaching has been less prominent and perhaps less effective than elsewhere. A second method is to require the student to attend at certain clinics serving as centres of instruction and demonstration in the preventive aspects of medicine—e.g., clinics for out-patients, for school-children, for tuberculosis, venereal disease, orthopædics, pediatrics, vaccination, maternity, and occupational diseases (the effect of environmental factors of industrial employment, hours and methods of work, psychology, strains, stresses, &c.).

THE PREVENTIVE ASPECT.

Both these methods are entirely sound and indeed necessary, but a third method, and much the best, is to introduce into the main subjects of the curriculum, physiology, pathology, medicine, surgery, and obstetrics, the preventive principle and the preventive trend. This method is the best because it is the means of integration of the whole curriculum—its greatest single need—what Aristotle called "the track of the many into the *one*, and the *one* into the many." It has been admirably arranged at Harvard, at Vanderbilt, and at other progressive schools in the New World and in Europe. Let me illustrate how this works.

In *physiology* the whole purpose of study is to learn the normal functioning of the living body in health. The student acquires a scratch line, the norm, from which to start his race. The proper functioning of the body must be understood before we can consider its improper or disturbed functioning—in circulation, respiration, digestion, excretion, and nervous regulation. We require to know about normal blood pressure, normal endocrinology, normal sense functioning, normal physiology; yes, and not only the average normality, but the wide extension and variety of the normal. Is it not futile to attempt to learn of the abnormal *until* we have appreciated a standard? What is the use of talking about "deficiency" or "digestive" diseases until we understand the balanced efficiency of normal assimilation? Yet nutrition of the individual and of the community lies at the foundation of all personal and national health. Nor is nutrition only a question of food-supply. A dietary may be too low for the energy output, or it may be too high, or it may be deficient or excessive in some vital constituent. But much else is involved in nutrition than the dietary—oxgyen-supply, exercise, rest, assimilation, metabolism. Until we have considered this subject physiologically it is mere empiricism to attempt to deal with obesity or malnutrition, with diabetes or nephritis, with abnormal blood pressure or anæmia, with scurvy or rickets. Similar considerations apply to respiration. What is the use of discussing disease of the lung until we have mastered the significance of the dual functions of pulmonary respiration and tissue respiration, and their relation to the biochemistry and excretion of the body.

I mention these two anatomical tracts, because in 1930 diseases of the alimentary and respiratory tracts taken together were accountable for more deaths in this country than any other regions of the body; independently of them came diseases of the heart and circulation, which indeed stands alone as the most mortal part of the body. Recently a careful inquiry was made into the morbid conditions which most commonly brought the insured person to his doctor. The inquiry covered 698 medical practices in 500 representative areas in all parts of England and Wales, comprising more than 1,000,000 persons, and two conditions were found to be overwhelmingly predominant over all other forms of incapacitating sickness—viz., respiratory disease (in 22 per cent. of patients) and disease of the digestive system (in 13 per cent.). Forty-four per cent. of the remainder came to their doctors for influenza, anæmia, skin disease, minor injuries, septic conditions, lumbago, rheumatism, and debility. What does this mean? It means that, in national physical incapacity and in national mortality, disease of the lung and disease of the alimentary tract stand first in causation—two vast groups of disease comprising a great variety of morbid conditions, minor and major, from dyspepsia and bronchitis to malignant disease. Again, these facts mean that when you go into practice it is not the rare disease or the complex surgical operation which will provide your daily round and common task. It is bronchitis or indigestion, and following close upon them lumbago, rheumatism, or debility, an injury or an infection, which will call for your skill. The prospect may appear to you to be tedious and trivial, but such is, all too often, the beginning of mortal disease and high tragedy. Be that as it may, the daily routine practice of the medical man is the primary opportunity for the practice of preventive medicine, for it provides him with the beginnings of disharmony and disease.

When we turn to *pathology*, we shall find a field no less preventive than that of physiology. For in our own time the study of pathology has passed beyond the compass of Morgagni and even of Bichat and Virchow—beyond organs and tissues and cells—to the dominant issue of causation. John Hunter taught us the recuperative power of the living tissues, a power of resistance and even of repair, but it was left for the bacteriologists, Koch, Pasteur, and Ehrlich to reveal to an astonished world both the cause and prevention of infective processes, establishing for themselves immortal fame and for us a priceless inheritance. The tissues, we now know, are a soil upon which may be sown a seed, or they may receive the impress of a virus, a toxic poison or an irritation, or the renovating influence of an antibody. We now know also that these agents or factors have channels of entry and means of diffusion which afford us a new opportunity for their control, for their direction and use, or for their destruction. Our conception of the ætiology of infection has been revolutionised, and not less profound and far-reaching has been a new understanding both of non-infective changes of degeneration and of the immense resources of the body cells to furnish defence. Viruses and toxins open the door to antitoxins and vaccines, which are now universally applied; and even the secretions of ductless glands can be turned to therapeutic advantage. Twenty years ago Sir Almroth Wright prophesied that the physician of the future would be an immunisator, and that foreseen power is yours to-day. Thus, a wholly new and ever-extending field of prevention, natural and artificial, has been opened to mankind.

With the aid of many new instruments and tests of precision, of investigation and of therapeusis, the practice of physic or internal *medicine* has become an immensely larger occasion both as a science and an art. For instance, 40 years ago the clinician was guided by the heart sounds, he is now directed by a cardiac syndrome or a syndrome wider yet, that of the capacity of balance and repair of the heart, and even of the body itself, leading to new methods of dealing with heart disease, with arterio-sclerosis, with diabetes, with pernicious anæmia, with thyroidism—illustrations of the advance of experimental medicine and the application of the principles of prevention to the reduction of the suffering and sequelæ of disease. "Preventive and Curative medicine," says Sir Humphry Rolleston, "are connected by the bridge of prophylactic treatment"; and in the region of internal medicine the bridge has been so soundly built that the application of preventive medicine is greatly extended. The conquest of chlorosis and of enteric fever are among the victories of our own time. But they are not alone—syphilis, myxœdema, tetanus, deficiency disease, scarlet fever, diphtheria, and certain protozoal infections are steadily being subjected to control, and similar progress is being made in the understanding of mental conditions, of endocrinology, of pædiatrics, and of the wide fields of metabolic disease and occupational sickness.

There remain two fields, those of *surgery* and *obstetrics*, in which it is sometimes even now held that prevention has little or no place. But if that be so, what are we to say of the ancient surgical operation of circumcision? Was it designed, and became an imposition, some thousands of years ago, as an example of curative or of preventive surgery? And why do we excise enlarged tonsils or remove excessive adenoidal growths? In recent years the whole subject of orthopædics has come much to the front, and with it remedial exercises and immobilised rest, bearing a strong preventive tendency. Nor can we forget the preventive surgery of sepsis, as wide as the needs of men, or of tuberculosis, venereal disease, and much timely surgical intervention in abdominal, gynæcological, genito-urinal, and dental conditions. It is true that much surgery is curative, but on reflection it will be found irresistible to recognise its prophylactic and preventive tendency, a tendency happily most rapidly increasing, and very appropriately so in the great age of Listerian advance. If aseptic surgery be not preventive surgery, what is it?

Lastly, let me say one word on *midwifery*. We have been faced in England for some time past with a relatively high mortality in childbirth. There is a complex of factors and circumstances which cause it. The true answer is no doubt "preparedness" associated with antiseptic surgery. Competent and skilful midwifery, available at the crucial moment, is clearly a necessity, but still more necessary is effective antenatal and postnatal supervision, and as far as possible by the person who will conduct the delivery. The evidence is unmistakable. All over England and every day women come to childbirth unprepared. They prepare for many hazards, but all too little for this. Preventive medicine is the medicine which foresees, and then avoids. If 3000 mothers a year lose their lives by death at childbirth, probably more than ten times that number come through their travail injured. Here too is the occasion for wise preventive midwifery, reparative reconstructional midwifery, which shall leave behind it a minimum of subsequent malady and disability.

There remains a fourth method. I am assured that the study of preventive medicine will only become really popular among students when a separate examination in the subject forms an integral part of the final examination for qualification. Whether this be so or not, there is much to be said for including specific preventive questions in the intermediate and final examinations, every time, to the exclusion of less important questions.

A FOUR-FOLD SCHEME.

Here then is a four-fold scheme by which this vital subject may be made to permeate the whole length and breadth and depth of the medical course. The matter has become one of somewhat urgent importance, for the simple reason that many newly qualified doctors in this country do not appreciate or apprehend the preventive trend which is now characteristic of enlightened medical education in all civilised nations and is required in modern practice. I submit for consideration that in every medical school this subject should no longer be neglected, but that the medical faculty of every school would do wisely to devise a scheme for including these four methods:

(*a*) A series of sensible lectures dealing not chiefly with sanitation or public health for medical officers of health, for that is a rather different issue, but with hygiene, conservative medicine, or preventive medicine (call it what you please) for every medical student. Such lectures should be concerned with the application of the new knowledge in physiology, pathology, and the arts of medicine, to the internal and external environment of man's life.

(*b*) Attendance at special clinics for the practice of preventive medicine.

(*c*) The introduction of an organised and well-designed system of instruction in the preventive aspects of the several principal subjects of the curriculum; and

(*d*) An appropriate examination before qualification.

I have long held the view that whatever benefits we may reasonably expect from organised public health services under the auspices of the State, the real outpost, the interpreter, the exponent, and the herald of preventive medicine is the medical practitioner. The time is not far distant, if it be not here already, when the public will demand preventive advice from the practitioner, both in the manifold forms of domestic hygiene and in personal hygiene and prophylaxis. We must not forget that 15,000 practitioners in England and Wales have already accepted service under the National Insurance Act, an Act passed by Parliament for the prevention as well as the cure of sickness. Is the public getting an effective preventive service? If not, is it because the doctor has not been trained to provide it? Does he appreciate that it is his function to seek the *cause* of the bronchitis, the dyspepsia, the lumbago, the rheumatism, the anæmia, the nervous breakdown, for which he is consulted; and then set to work to bend himself to control it?

THE CASE SUBMITTED.

Here then is the case I submit for your consideration. The study of preventive medicine is not mainly concerned with the sanitation of the external environment; it is much more dependent upon vital principles, three of which, in conclusion, I invite you to bear in mind.

First, to search diligently for the *causes* of things, and happy is the man who finds them, for it is understanding and comprehension and not repetition which is the secret of memory, and the wisdom of all medical action as well as of masterly inactivity.

Secondly, to try to learn and apprehend the immense range and capacity of *the body and mind of man*, the most wonderful thing we yet know of in the universe, "Nature's chiefest instrument" as Leonardo da Vinci calls it—its amazing inherent powers of resistance and defence, of recovery and healing and adventure.

Finally, to habituate yourselves to *think preventively* and constructively, for Nature itself is rational, constructive, and purposive, and as you may generally rely upon the constancy of the internal environment of man's body, so you must explore and interpret the influence of the variabilities of his external environment, for these two factors are the controllers of his life and survival, and they stand at the heart and centre of all true preventive medicine.

KERATODERMA BLENNORRHAGICUM.

ITS HISTOLOGY, CLINICAL CHARACTERISTICS, AND TREATMENT, WITH REPORT OF EIGHT CASES.

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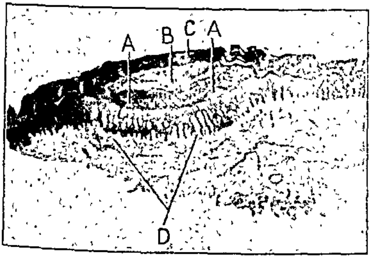
The skin eruption known as keratoderma blennorrhagicum, together with the manifestations of a local and systemic gonorrhœal infection, presents a well-defined syndrome to which attention was first directed by Vidal in 1893. The clinical description of the eruption then given was very complete and, although no histological examination of the lesions was made, Vidal considered them to be inflammatory in nature. The dry horny masses which characterised them in their later stages, and to which the eruption owes its name, were regarded as secondary to a localised acute inflammatory process in the skin. Subsequent authors, impressed by the clinical appearance of the fully developed lesions, regarded the condition as a special type of primary hyperkeratosis. This view, however, was soon abandoned, and the essentially inflammatory nature of the lesions was rediscovered as a result of histological studies.

Up to the present time the clinical manifestations and course of the syndrome have been described in more than 80 cases. These have been thoroughly reviewed from time to time by Keim, Rosenberg and Silver, and Barrett. From a study of these published cases the following broad facts emerge. The syndrome comprises; (1) a urethritis of gonococcal origin; (2) polyarthritis; (3) inflammatory crusted skin lesions, which may be generalised but which have a predilection for the palms and soles; (4) a swinging temperature; (5) cachexia; (6) the possibility of recurrence associated with a recrudescence of the existing urethral infection, or with a reinfection by the gonococcus.

While the urethritis and arthritis are undoubtedly due to the gonococcus, the ætiology of the skin lesions has not yet been definitely proved. The fact that such lesions present a unique appearance and are only found in association with two other gonococcal manifestations is strong evidence that the cause is identical.

The incidence of this condition is stated by Harrison to be 1 in 5000 cases of gonorrhœa, while Brown and Hargreaves found only three cases in 20,000 cases of gonorrhœa.

FIG. 1.



Early vesicular lesion (× 8). A—A = vesicles ; B = coagulated fibrin ; C = stratum corneum ; D = inflammatory infiltrate.

Ætiology.

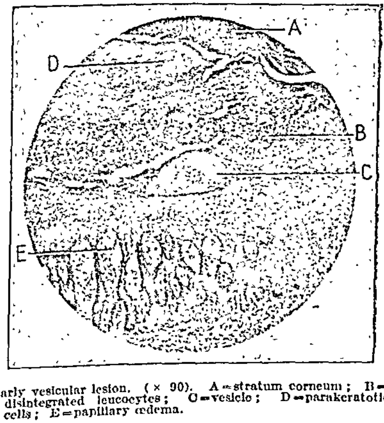
In spite of the fact that the syndrome has all the clinical appearances of a septicæmia, blood cultures, with one exception, have been uniformly negative. Roark (1912) reported the isolation of an unidentified Gram-negative diplococcus from the blood in one case. Wadsack, Campbell, Gager, Du Bois, and Barrett have found extra- and intra-cellular gram-negative diplococci in smears taken from the base of the skin lesions, and Scholtz (1899) has cultured the gonococcus from a cutaneous abscess associated with urethritis and inflammatory skin lesions. Scholtz (1927) observed the sudden appearance of fresh crops of skin lesions after the therapeutic administration of a gonococcal vaccine in one case—a phenomenon resembling a Herxheimer reaction and suggesting the gonococcal nature of the skin lesions. Chauffard and Feissinger, and Haase were able to reproduce the skin lesions by abrading the skin surface and rubbing in material obtained from the base of existing lesions. Haase, however, observed that skin lesions tended to occur on any abraded area apart from the special application to it of the exudate from old lesions. This observation, while favouring the view that the lesions are due to a blood infection, rather modifies the previous one, which otherwise would suggest that the skin lesions were infectious. Jeanselme and A. Winkelreed Williams emphasised the septicæmic nature of the condition. Haslund and Woodward also drew attention to the toxic nature of the lesions, and the former stated that in his case there was an endogenous conjunctivitis. Berman reported two cases which had lesions of the mucous membranes of the mouth, and refers to four others, and states that endocarditis was frequent in these patients. In other reported cases acute endocarditis and iritis have been recorded.

There is no doubt that most cases are preceded by a severe gonorrhœa involving the posterior urethra, the prostate gland, and the seminal vesicles, and that the infection produces a profound toxæmia and a metastatic arthritis.

In seven of the present cases and in one reported previously by one of us (D. L.) in 1922, there was definite clinical evidence of varying degrees of septicæmia. The clinical evidence certainly points definitely to the cutaneous eruption being a toxic manifestation due to a gonococcal infection, acting either directly on the skin or indirectly through the nervous system, and so producing trophic changes.

Strandberg and Hedenicus, on the other hand, state that there is no decisive evidence that this parakeratosis is due to the gonococcus. Adamson states that there are many cases of gonorrhœal hyperkeratosis in which there are eruptions on the trunk and limbs which are indistinguishable from psoriasis, and he reports three cases of arthropathic psoriasis in females in which the resemblance to keratoderma blennorrhagicum was very striking. The histopathology of both conditions is, in his opinion, very similar. Stillians and Zeisler discuss Adamson's suggestion that there is this clinical and histological resemblance. They are not prepared to accept his conclusions, because the acute course of the gonococcal hyperkeratosis with its spontaneous subsidence is sufficient to outweigh anything in favour of the identity of this lesion with an arthropathic psoriasis. Bogrow favours the view that cases in which gonococci are not found in the urethral tract are strongly suggestive of an arthropathic psoriasis, while those in which gonococci are present are due to a gonococcal toxæmia. Keim considers that histologically the lesions are different in arthropathic psoriasis and keratoderma, since the latter originates in a vesicle and soon becomes pustular. Scholtz doubts whether gonococcal keratoderma is a definite clinical entity or is merely a syndrome induced by some other type of infection than gonorrhœa in a patient who previously has had gonorrhœa.

FIG. 2.



Early vesicular lesion. (× 90). A = stratum corneum ; B = disintegrated leucocytes ; C = vesicle ; D = parakeratotic cells ; E = papillary œdema.

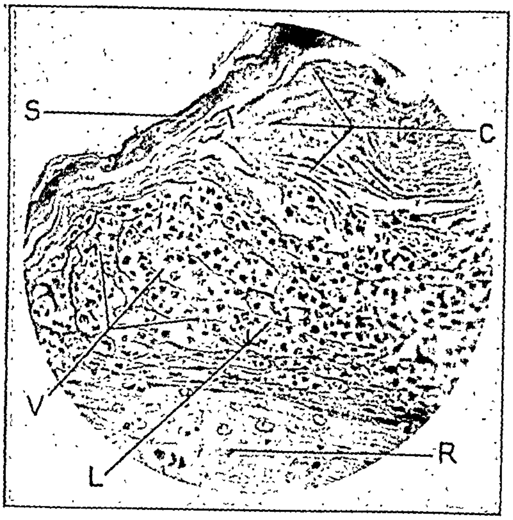
The foregoing observations throw no light on the precise causation of the skin eruption, nor do they afford any evidence which is contradictory to the conception that it is due to a blood-borne gonococcal infection. The results of blood culture and of bacteriological examination of typical lesions must, however, be considered negative, since any organisms isolated have not been identified culturally.

Authors' Cases.

In each of our eight cases there was undoubted evidence of a severe systemic gonorrhœa, complicated by an arthritis of varying severity, and clinically every case was profoundly toxæmic. In none of the eight cases were we able to isolate the gonococcus by blood culture, nor in films or culture, even from the earliest vesicular lesions. In spite of this, we have no doubt that there is a definite association between the severe metastatic gonorrhœa and the skin eruption, and that the organism or its toxins act directly on the skin, or that the toxins act indirectly on it through the nervous system and lead to atrophic nerve disturbances.

In Case 6 a culture of the urethral discharge gave a growth of gonococci, *Staphylococcus albus*, and diphtheroid bacilli. A culture of the skin lesion showed *S. citreus*. When the eruption had reached its height and no fresh lesions were appearing, an attempt was made to reproduce the lesions on areas of the patient's skin which were previously unaffected by the disease. The methods used were: (*a*) scarification of the skin and inoculation of a culture from the hyperkeratotic papule (*S. citreus*); (*b*) scarification of the skin and inoculation of a culture from the urethra (gonococci, staphylococci, and diphtheroids); (*c*) intradermal injection of the culture from the papule; and (*d*) intradermal injection of the urethral culture. Controls were established by scarification alone, scarification with killed cultures, and intradermal inoculation with killed cultures. No change on the skin was noted, except in the area of intradermal inoculation of the live culture from the urethral discharge. This resulted in a typical vesicle which rapidly became pustular and hyperkeratotic.

FIG. 3.



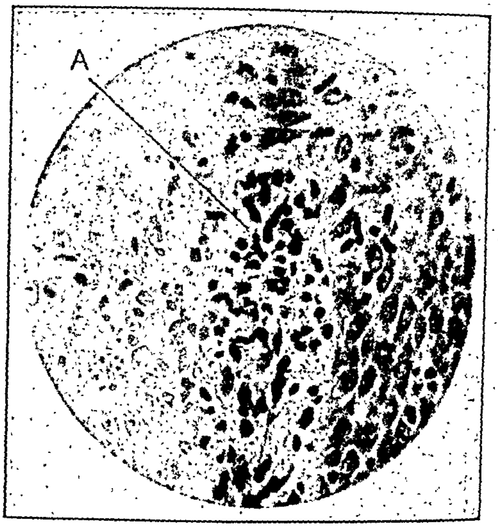
Pustular lesion (×245). S=stratum corneum; C=parakeratotic crust; V=desiccating vesicle filled with disintegrating leucocytes (L); R=upper layer of rete Malpighii.

While no conclusions can be drawn from the fact that the intradermal inoculation of a mixture of a living culture of gonococci, *Staphylococcus albus* and diphtheroid bacilli reproduced the lesion of keratoderma blennorrhagicum, there are three possible explanations for its occurrence:—

(1) By coincidence a fresh lesion may have appeared spontaneously at the site of inoculation.

(2) The mixture of living organisms may have been directly responsible for the production of the skin lesion.

FIG. 4.



Shows the tip of a congested papilla with invasion of the rete Malpighii by lymphocytes, at A.

(3) A spontaneous lesion may have been induced and localised at the site of inoculation as a result of the accompanying trauma.

The third possibility would place the lesion in the same category as the lesions of psoriasis and lichen planus which appear at the site of skin injuries. This "Kobner phenomenon" has also been shown to occur when fungus spores are injected intravenously, and trichophytide lesions are provoked on any area of the skin which has been traumatised. As 11 other skin areas had been scarified or inoculated in this case without the production of a lesion, the Kobner phenomenon does not seem to offer a very satisfactory explanation of the positive result obtained. As no further skin lesions appeared in this patient, it is possible that the live culture or its toxins may have acted directly on the skin and produced the lesion. Further experiments along these lines are, however, required to substantiate this observation.

HISTOLOGICAL FINDINGS.

CASE 1. *Vesicular stage* (Figs. 1 and 2).—The lesion is clearly demarcated from the surrounding skin. Superficially, the stratum corneum is intact and is raised from the rete mucosum by a mass of coagulated fibrin in which are to be found numerous polymorphonuclear leucocytes and lymphocytes, interspersed by layers of parakeratotic epidermal cells. In the deepest parts of this mass there are several circumscribed collections of fluid which contain a few epidermal cells and polymorphs. These small vesicles rest on and are surrounded by compressed epidermal cells. Throughout this mass of evidently desiccating inflammatory exudation there are several homogeneous areas of coagulated fibrin, which are probably the remains of previous vesicles. The subjacent rete mucosum is depressed by this overlying mass. In the rete the stratum granulosum stops suddenly at the edge of the lesion, and is absent throughout the whole of the area involved. The newly formed vesicles are situated at the level which should have been occupied by the stratum granulosum. The rete is acanthotic, and the pegs are long and narrow. The cells stain poorly and are swollen, and vacuolation is seen in places. The nuclei do not stain well, and in some places the outer membrane only is to be seen. Polymorphonuclear leucocytes and lymphocytes are scattered throughout the rete, invasion having taken place at the tips of the papillæ. The rete is the seat of the intercellular œdema, which varies in amount in different parts of the lesion. The papillæ are elongated, and the vessels are very much dilated. In their upper part the papillæ are very œdematous, while at the base there is a well-marked cellular infiltration which consists chiefly of lymphocytes. The middle and deep zones of the dermis are normal.

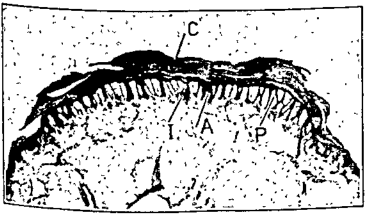
CASE 2. *Pustular lesion* (Fig. 3).—The lesion involves the upper part of the dermis and the epidermis, and is clearly defined from the surrounding normal tissue. At the periphery of the lesion the stratum corneum is hypertrophied and separated from the subjacent epidermis by a localised infiltration of polymorphonuclear leucocytes and lymphocytes. The stratum corneum forming the superficial covering for this infiltration is composed of normally keratinised cells. Towards the centre of the lesion the surface inflammatory exudation has become desiccated, and here masses of imperfectly keratinised nucleated epidermal cells alternate with groups of invading leucocytes and coagulated plasma to form a squamous crust, which is covered externally by a thin band of stratum corneum. Leucocytes and fibrin form a continuous layer above and in close contact with the most superficial epidermal cells. The whole of this structure forms a conical elevation which rests on the subjacent mucosum.

The stratum granulosum is practically absent, and the cells corresponding in position to this layer are flattened and elongated, and only occasionally contain granules. The rete mucosum is acanthotic, and the interpapillary processes are elongated. The rete cells are slightly swollen, and the cell protoplasm and nuclei stain somewhat faintly in the upper layers while staining normally in the interpapillary processes. A certain degree of intercellular œdema is present in places throughout the rete. The rete is in process of being invaded by polymorphonuclear and mononuclear leucocytes, but these are not present in large numbers. The invasion occurs at the tips of the papillæ (Fig. 4).

In the dermis the papillæ are elongated and œdematous, and are the site of an extensive mononuclear and polymorphonuclear leucocytic infiltration. These infiltrating cells can be seen invading the basal layer of the epidermis at the tips of the papillæ. The blood and lymph vessels of the papillæ are dilated, and the endothelial cells lining the vessels are swollen. Many of the vessels of the subpapillary vascular plexus are dilated and surrounded by a perivascular infiltration of mononuclear leucocytes. The middle and lower portions of the dermis are normal, and the lesion is clearly demarcated from the surrounding skin both as regards the epidermal changes and the papillary infiltration.

Parakeratotic rupioidal lesion (Figs. 5–8).—A dense lamellated mass replaces the stratum corneum, which is completely absent from the area occupied by the lesion. This mass is composed of broad layers of parakeratotic cells interspersed with areas of coagulated plasma and degenerated leucocytes. This squamous crust rests on a layer of horizontally elongated rete mucosum cells (Figs. 5 and 6). The interpapillary processes of the rete mucosum are narrowed and elongated. The suprapapillary portions are very much narrowed, and the cells in these regions are packed tightly together and elongated horizontally. The stratum granulosum is represented by a layer several cells in thickness, and eleiden granules are practically absent. The cells composing the interpapillary rete processes stain well and, apart from lateral compression in places, appear normal. A few mononuclear leucocytes can be seen to have invaded the rete mucosum.

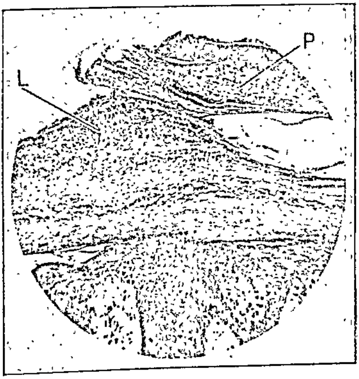
FIG. 5.



Fully developed parakeratotic rupioidal lesion (×8) showing squame crust (C), ancanthotic rete Malpighii (A), papillary œdema (P), and inflammatory cells at base of papillæ (I).

The papillary processes of the dermis are broadened and elongated. All are markedly œdematous, and contain a few scattered mononuclear and connective tissue cells supported by a scanty and wide-meshed fibrillary network. The papillary vessels are very much dilated. At the base of the papillæ there is a well-marked, loosely packed infiltration of small round cells, with here and there an occasional large lymphocyte or histiocyte. In this region there is still some œdema, but it is very much less marked than in the papillæ proper. In the subpapillary portion of the dermis there is a slight amount of œdema, and many of the lymph and blood-vessels are dilated and surrounded by a perivascular small round cell infiltration. The deep layers are normal (Figs. 7 and 8).

FIG. 6.



Showing structure of parakeratotic squame crust (×115). L=mass of disintegrated leucocytes; P=parakeratotic stratum corneum cells.

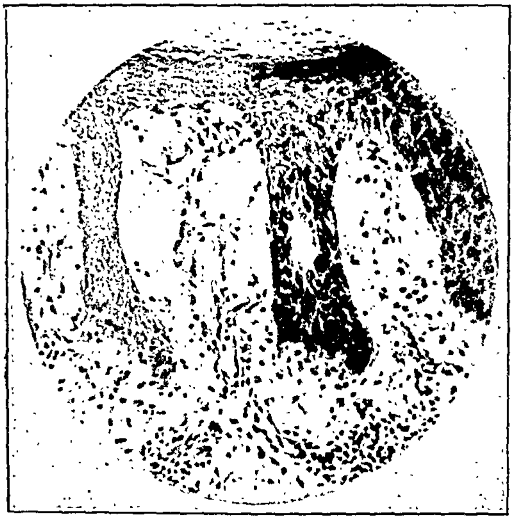
CASE 3. *Parakeratotic rupioidal lesion* (Fig. 9).—The stratum corneum is replaced by a dense, thick, squamous crust, consisting of alternating layers of parakeratotic epidermal cells, polymorphonuclear, and mononuclear leucocytes, and fibrin. This crust rests directly on the rete mucosum and, at the points of contact, parakeratotic cells, leucocytes, and coagulated fibrin are intimately intermingled. The rete mucosum is acanthotic, the interpapillary processes are long and fingerlike, and the papillæ are elongated. The cells of the rete stain normally, and there is no intercellular œdema present. The suprapapillary portions of the epidermis are composed of compressed, elongated, closely packed rete cells. Mononuclear and polymorphonuclear leucocytes are scattered throughout the rete, and can be seen invading the basal layer at the tips of the papillæ. Several small nests of invading leucocytes are present in the upper layers of the rete, giving the appearance of small, intra-epidermal abscesses (Fig. 9). The stratum granulosum is replaced by a layer of flattened, non-granular cells.

In the dermis the papillæ are tremendously elongated and œdematous. The papillary vessels are widely dilated. The stroma of the papillæ is reduced to a wide-meshed network of fine fibrils. There is much coagulated fibrin enclosed in this network, and a few small round cells and connective tissue cells are scattered throughout. Towards the base of the papilla, cellular elements are more numerous, and consist mostly of small round cells, with here and there a few large lymphocytes or histiocytes. The subpapillary area of the dermis is œdematous, contains numerous widely dilated blood and lymph vessels, and an abundant loosely packed infiltration of small round cells situated more or less around the vessels; there are also numerous proliferated connective tissue cells and larger cells which appear to be derived from the endothelium of the blood-vessels. In the middle and lower portions of the dermis œdema is absent, and collagen fibres are normal. The connective cells are slightly more numerous than usual, and some blood-vessels are dilated and surrounded by a scanty infiltration of small round cells.

COMMENT ON HISTOLOGY.

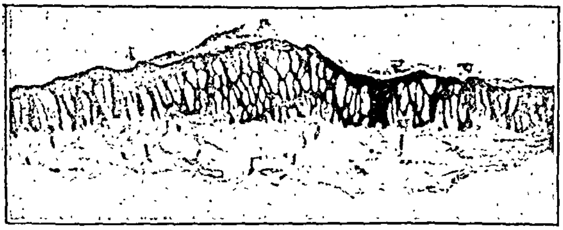
The primary vesicular nature of the lesions of undoubted cases of keratoderma blennorrhagicum has been commented on by several workers who have based their observations on clinical and histological examination of the eruptive elements. Keim (1924) has studied the histology of the lesions in one case in which the lesions were shown to commence as intra-epidermic vesicles, and to pass through a pustular to a crusted stage. Marked œdema of the papillæ and epidermal cells, together with elongation of the rete pegs and the presence of laminated parakeratotic squame crust, were characteristic features of the fully developed lesion. Barrett has also demonstrated histologically the primary vesicular structure of the lesions. Chauffard (1897), Sobotka (1913), Haslund (1913), Simpson (1917), Stillians and Zeisler, Gans, Haase, and Rostenberg and Silver (1927) have variously emphasised the papillary œdema, epidermic œdema, and parakeratosis.

FIG. 7.



Papillary œdema in a fully developed rupioidal lesion (×120).

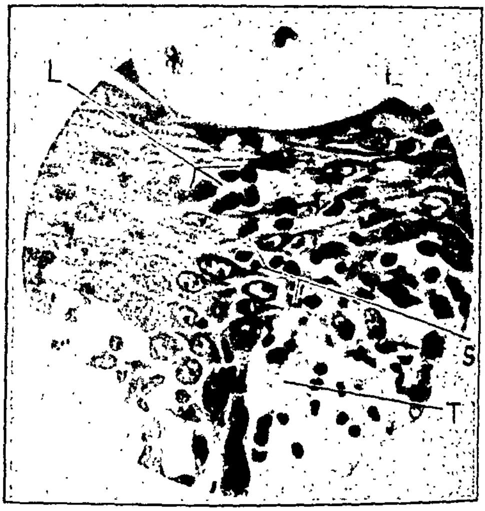
FIG. 8.



Entire parakeratotic rupioidal lesion (×8) showing acanthosis, papillary œdema, and remains of crust.

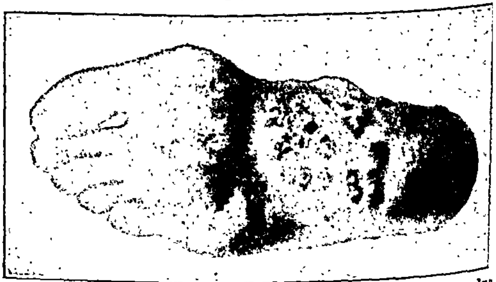
In the present series of cases histological examination shows that the eruptive elements commence as small intra-epidermic vesicles, the contents of which rapidly become purulent, and subsequently dry up. The formation of multiple vesicles, along with their subsequent dessication, is well illustrated by Figs. 1, 2, and 3, and the latter corresponds closely with Figs. 8, 9, and 10 of Keim's article. These vesicles occur at different points of the lesion, and are subsequently pushed up towards the surface. They interfere with normal keratinisation, bring about parakeratosis, and separate the stratum corneum from the rete mucosum. By the constant repetition of this process the stratum corneum eventually forms a covering for a lamellated mass of coagulated fibrin, leucocytes, and parakeratotic epidermal cells. In this mass the localised aggregations of disintegrated leucocytes and homogeneous fibrin represent the relics of the previously existing vesicles. Later, actual vesiculation apparently ceases, and its place is taken by the formation of small intra-epidermic collections of lymphocytes which, however, have the same effect on the process of keratinisation as had the vesicles. Coincident with the increasing thicknes of the squame crust, the covering of normal stratur corneum which was present during the earlier stage of the lesion is lost.

FIG. 9.



Parakeratotic rupioidal lesion (×290) showing tip of œdematous papilla (T), stream of leucocytes (S) invading the rete and leading to a small collection of lymphocytes situated high up in this layer.

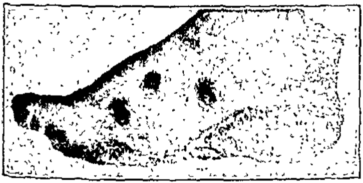
FIG. 10.



Papulo-pustular condition after rupture of vesicles and gradu formation of horny papules.

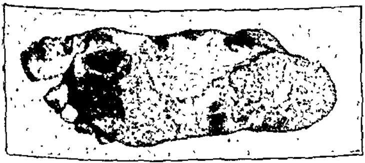
These changes in the superficial strata of th epidermis appear to result from an acute inflammatio of the papillary layer of the dermis, which probabl constitutes the initial step in the formation of th lesion. Here œdema is present to an extreme degree and cellular infiltration is marked. Cellular invasion of the basal layer of the epidermis is also taking place. It is a striking fact that, between the superficial crusted mass and the grossly altered papillæ, the rete mucosum shows very little structural change except that which can be accounted for by mechanical pressure. The stratum granulosum, however, is practically absent throughout in all the sections, and parakeratosis has occurred. In places a stream of leucocytes can be traced *from* the *tip* of an œdematous papilla to a small collection of leucocytes in an intra-epidermic space at the level of, or just underneath the layer which should have been occupied by granular cells. The lesions taken from both cases in their later stage show a striking resemblance to each other, and to that illustrated by Keim in Fig. 11 of his article. The dermic inflammatory process seems to be limited to the pars papillaris throughout the entire evolution of the lesion. The structure of the lesions at various stages of development gives no real indication whether these have been produced as a result of an external or blood-borne intoxication or infection. The changes are limited to the superficial zone of the skin throughout their evolution, a localisation which could be accounted for by either method. In the early stages, however, the thick stratum corneum remains intact, and the lesion continues to develop underneath this protecting layer for some considerable time. This fact might be brought forward as evidence against the external origin of the causative agent. In the later stages it is very probable that secondary infection of the lesion as a result of surface contamination is to some extent responsible for the persistence of the inflammatory reaction.

FIG. 11.



Fully formed horny conica papules.

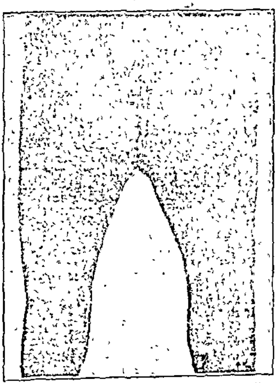
FIG. 12.



Large geographic map-like areas of keratoderma.

This picture of acanthosis, parakeratosis, and cellular invasion of the epidermis presents a striking resemblance to some types of psoriasis. The clinical resemblance between keratoderma blennorrhagicum and arthropathic psoriasis has also been noted by Wailsch, Buschke, Adamson, Little, and Falk, and it has even been suggested that all cases of keratoderma blennorrhagicum are merely examples of arthropathic psoriasis. At present, in the absence of direct proof of the gonococcal origin of the skin lesions of keratoderma blennorrhagicum, it is impossible to make a distinction from the ætiological aspect. The architecture of the lesions is, however, essentially different from that of psoriasis, in view of the initial well-marked vesicle formation, although in the later stages of development, when evidence of previous vesiculation is lacking, the histological differentiation of the two diseases is delicate. Keim, Scholtz (1927), and Rostenberg and Silver have no hesitation, on histological findings alone, in considering keratoderma blennorrhagicum as a dermatological entity which is quite distinct from psoriasis. As distinguishing features between the two conditions in the later stages, the following points may be brought forward. The squame crust in keratoderma blennorrhagicum differs from the purely parakeratotic scale seen in psoriasis, and in the former condition the papillary œdema is a marked and apparently constant feature. Furthermore, the predominating cell in the epidermal infiltrate in keratoderma *blennorrhagicum* is the lymphocyte.

FIG. 13.



Blotchy pigmented appearance of skin after hyperkeratotic papules drop off.

Clinical Characteristics.

The cutaneous lesions may appear at any time after a gonococcal infection. Williams has reported a case occurring 13 years after, and Lees a case occurring 18 years after the initial gonorrhœa. The common time of onset is from the third to the sixth week of the acute gonorrhœa. This skin eruption is rare in females, but cases have been reported by Robert, Buschke and Langer, and Lees. The youngest recorded case is by Robert, in a girl 4 years of age.

The lesion appears initially on the lower limbs and *is generally* bilateral. The soles of the foot, especially in the region over the plantar surface of the big toe, are almost always affected. In some cases the cutaneous eruptions are widespread over the trunk and extremities. This occurred in Cases 3, 5, 6, and 7. In Case 5 the keratotic lesions were present on the prepuce, producing a balanitis circinata. In this series of cases we were able to observe the lesions in all stages of development, from the early minute vesicle to the large parakeratotic rupioidal lesion

The skin eruption of keratoderma blennorrhagicum starts as a series of vesicles, small at first, which gradually enlarge and take on a dark red colour. The vesicle ruptures and papulo-pustular formation (Fig. 10) sets in with crusting, which gradually forms into a conical papule. These conical papules enlarge (Fig. 11) and are horny on palpation. They become more crusted, or coalesce to form large geographic map-like areas (Fig. 12) which finally drop off and leave the skin with a blotchy pigmented appearance (Fig. 13). There is no loss of tissue, and no induration left after the hyperkeratotic papules drop off.

In a case of gonococcal urethritis which is complicated by a metastatic arthritis, a vesicular skin lesion, which rapidly becomes pustular and keratinised, and which is bilateral, is almost certainly keratoderma blennorrhagicum. The gonococcal complement-fixation test gives a positive reaction. The Wassermann test and the flocculation tests for syphilis are negative unless the patient has an additional syphilitic infection. A hyperkeratotic syphilide is generally unilateral. A rupioid psoriasis is rarely accompanied by arthritis, and evidence of gonorrhœa is not present. There is not the same systemic upset.

CASE REPORTS.

Eight cases have been observed in the venereal department of the Royal Infirmary during the past nine years; all were in adult males.

CASE 1.—A man, aged 28, developed a purulent urethral discharge seven days after exposure to infection, and was admitted to hospital on the fourteenth day of the illness, with acute arthritis of the right knee and both ankles. The temperature was 103°–104° F. Gonococci were present in the urethral discharge, and there was an acute posterior urethritis with involvement of the prostate gland and seminal vesicles. The blood gave a strongly positive complement-fixation test, and a negative Wassermann reaction. Blood culture was sterile.

On the twenty-second day of the illness an eruption appeared on both feet and followed its usual course, becoming hyperkeratotic in ten days, and desquamating after about three weeks. For four weeks all symptoms improved, and the patient made satisfactory progress. In the fifth week the urethral discharge recurred, the right ankle became inflamed again, and a fresh crop of lesions appeared on the feet. These became hyperkeratotic, and finally desquamated. The urethral infection subsided, and again recurred in the fifth month of the illness, and later in the eighth month, but without recurrence of joint or skin manifestations. Patient left the city and was lost trace of; at the last examination gonococci were present in the urethral secretion.

Treatment consisted initially of small doses of an arsenobenzol preparation intravenously, followed later by injections of detoxicated gonococcal vaccine, and later still an autogenous vaccine combined with the stock vaccine. Local treatment by irrigation with numerous antiseptics was carried out, and appropriate tonics were given to combat the cachexia and other systemic symptoms.

CASE 2.—A man, aged 43, was admitted to hospital with acute arthritis of the right knee and left wrist, coming six weeks after the appearance of an acute urethral infection. The temperature was 101°–103° F. One week later the right elbow became inflamed, and an eruption appeared on both feet. The patient suffered from acute posterior urethritis and acute prostatitis, and gonococci were present in the urethral discharge. The blood gave a strongly positive gonococcal complement-fixation test and a negative Wassermann reaction, and blood culture was sterile. The arthritis gradually subsided, and disappeared completely in two months. The skin lesions desquamated in five weeks. He was eventually discharged as cured after five months.

Treatment was directed to the focus of infection in the urethra and prostate, and detoxicated gonococcal vaccine was given in increasing doses.

CASE 3.—A man, aged 36, came to hospital five weeks after the onset of an acute urethritis in which gonococci were stated to be present. He had suffered from acute arthritis of both knees for three weeks, had a swinging temperature, perspired profusely at night, and was acutely ill. This continued for another five weeks after admission, during which time both ankles, the left wrist, and the right shoulder became acutely inflamed. Both seminal vesicles were acutely inflamed. The toxæmia was profound, and the patient exhausted. Ten weeks after the onset of urethral discharge an eruption appeared on the chest, back, hands and feet, forearms and buttocks. On the hands and feet the hyperkeratosis was more marked; on the trunk the lesions tended to coalesce, and desquamated in large plaques. In spite of all treatment, the patient remained gravely ill for some weeks. The heart was dilated, and systolic murmurs were heard at all areas. Gradual improvement occurred later. The lesions desquamated about two months after their onset, the arthritis subsided, and finally full use of all joints was obtained. The patient was in hospital for six months, and was discharged as cured after eight months. No gonococci were found by us in urethral films, or in the urine, and culture tests of these secretions were sterile. Blood culture was repeatedly sterile. The gonococcal complement-fixation test was strongly positive, and the Wassermann reaction negative. Films and cultures from the vesicles and pustules on the skin failed to demonstrate any organisms.

Many forms of treatment were tried in this case—principally "914" intravenously in minute doses, and vaccines; first a detoxicated gonococcal vaccine, and later an autogenous vaccine made from the urine and prostatic and seminal secretion.

CASE 4.—A man, aged 30, suffered on admission from a subacute arthritis of both knees, ankles, and tarsus. He gave a history of acute gonorrhœa one year previously; three weeks after this infection both knees became acutely inflamed; later the left ankle, both shoulders, and subsequently the wrists and right ankle were involved. The joints had continued inflamed intermittently up to admission. Ten days after admission the eruption appeared on both feet and slightly on the hands; it gradually became keratinised, and desquamated after four weeks. During this period there was a mild irregular pyrexia—100° F. at night. Films and cultures from the urine and urethra failed to show gonococci; a growth of *S. albus*, *S. aureus*, *S. citreus* and diphtheroid bacilli was obtained. The prostate was enlarged and tender, and the expressed fluid contained pus cells in large numbers. The blood gave a positive gonococcal complement-fixation test, and the Wassermann reaction was negative.

Treatment consisted of small doses of "914" intravenously, and later stock gonococcal vaccine and an autogenous vaccine from the urine. Treatment of the urethra and prostate was continued throughout. All the symptoms cleared up in six weeks, apart from spurs on the calcaneum of each foot.

CASE 5.—A man, aged 28, attended hospital as an out-patient suffering from acute posterior urethritis, with involvement of prostate and seminal vesicles. Gonococci were found in the urethral films, and the complement-fixation test for gonorrhœa was strongly positive. The Wassermann reaction was negative.

Treatment was not continued by the patient: alcohol was taken, and five weeks later he reported with the ankle and tarsal joints of both feet acutely inflamed; the right knee became inflamed some days later. He was admitted to hospital where he ran an irregular fever—up to 101° F. at night; at the end of the fifth week of the illness an eruption appeared (see Fig. 10) on both feet, chiefly on the soles and margins, and slightly on the dorsum. Balanitis circinata was present, but cleared up rapidly under vaccine and other treatment. The arthritis and skin lesions subsided after two months, the urethral infection improved, and the infection was apparently cured, though the patient was kept under observation as an out-patient. He defaulted from observation and, five months after the onset of infection, returned with a purulent urethral discharge, containing gonococci, acute prostatitis and vesiculitis, and a recurrence of the arthritis of both knees, left elbow, and left wrist. Simultaneously the eruption reappeared on both feet. All manifestations cleared up fairly quickly under vaccines, and in two months all symptoms had disappeared. The patient was finally discharged cured at the end of ten months. The blood gave a strongly positive gonococcal complement-fixation test on readmission, a negative Wassermann, and on two occasions a sterile blood culture. Cultures and films were made of the fluid from the vesicles on the skin, but no organisms were demonstrated.

CASE 6.—A man, aged 25, was admitted to hospital with acute arthritis of both knees, and gave a history of acute gonorrhœa three months before, which had been untreated. He had no urinary symptoms, but an irregular pyrexia up to 100° F. at night, and the arthritis did not react to salicylates. One week after admission the eruption appeared on both feet, and a few lesions on each forearm, and on the abdomen and chest. A purulent urethral discharge reappeared, and gonococci were demonstrated. The prostate and seminal vesicles were enlarged and tender. The blood gave a strongly positive gonococcal complement-fixation test and a negative Wassermann reaction. Blood culture gave a growth of *S. aureus*. From the skin lesions a growth of *S. citreus* was obtained. Cultures from the urethra gave a growth of gonococci, *S. albus*, and diphtheroid bacilli. The arthritis subsided in three weeks; in the same period the lesions became horny and desquamated. Attempts were made in this patient to produce fresh lesions experimentally, as stated previously.

With "914" intravenously, and subsequently vaccines, both stock gonococcal and autogenous from the urine, the symptoms cleared up rapidly, and he was discharged cured in three months.

CASE 7.—A man, aged 32, had had gonorrhœa two or three years previously, associated with acute arthritis of the right knee and both ankles. This arthritis became subacute with repeated exacerbations, and the patient had een crippled for two years and bedridden for nine months. o treatment for the gonococcal infection had been given. he patient, when first seen, was very feeble and emaciated, ith large bed-sores over the sacrum, heels, and elbows. here was a complete subluxation of the right knee-joint, nd a subacute arthritis with fixation of the left knee and oth ankles. The temperature was irregular and swinging. here was a subacute posterior urethritis ; and the prostate d seminal vesicles were thickened and tender. The uption, which had been present for 14 days, was severe nd widespread, covering both palms and soles, appearing ghtly on the feet and legs, profusely on the trunk, and ghtly on the forearms. It was thought by his medical tendant to be a syphilitic rupia. Exhaustion and toxæmia re extreme. The eruption became horny, and after four eks had almost entirely desquamated. Examination of e urine and urethral films showed staphylococci and phtheroid bacilli, but no gonococci. Blood culture was rile. The blood gave a negative Wassermann reaction, d a strongly positive gonococcal complement-fixation test. Treatment consisted of minute doses of "914" intra-nously, and later "arthrigon" intravenously. The rexia subsided, and the patient showed some slight provement. No treatment to the urethra or prostate s possible, because of the joint deformities. The patient veloped broncho-pneumonia, and died of acute septicæmia weeks after the onset of the eruption.

CASE 8.—A man, aged 38, had a gonococcal infection in bruary, 1931, and a previous history of syphilis in 1917. dicinal treatment only was given at first. He reported hospital in May, 1931, with subacute posterior urethritis d subacute prostatitis. Subacute arthritis was present in th knees, both ankles, and the tarsal joints, with marked itation of movement. The temperature was 99°–100° F. all scattered vesiculo-papular lesions, which rapidly came keratinised, were present in large numbers on the t and legs ; a few were found on the trunk. Gonococci re found in urethral films and on culture. The comple-nt-fixation test for gonorrhœa was strongly positive. e Wassermann test and the Sachs-Georgi test gave sitive reactions, and the patient suffered from latent treated syphilis.

In addition to local treatment of the urethritis, intra-nous injections of "arthrigon" were given. The skin ions disappeared in three to four weeks, and the joints de rapid improvement under massage. All symptoms gonococcal infection cleared up after seven weeks of treat-nt. The latent syphilis was treated at the same time by ravenous "914," and intramuscular injections of bismuth. e patient is now undergoing tests of cure for gonorrhœa.

The striking characteristics of these eight cases of ratoderma blennorrhagicum were the association every case either with a previous urethritis (two ses) or with an existing acute urethritis (six cases). ery case suffered from an acute polyarthritis and her toxic manifestations of a severe metastatic norrhœa. In two cases the keratoderma recurred. he complement-fixation test for gonorrhœa was ways positive. The Wassermann test and the chs-Georgi reaction were negative in all except se 8, in which there was a previous but untreated philitic infection. Another feature of most of the ses was the response to treatment, and the final d complete disappearance of any evidence of the yperkeratosis. With the exception of Case 7 all int involvement disappeared, with complete restora-on of function and no deformity. In all eight cases e systemic infection was severe, and the temperature as swinging; anæmia, cachexia of varying degree, and uscle wasting were prominent features in every case.

Treatment.

The skin condition reacts well if the appropriate eatment for the urethral infection and the systemic onorrhœa is given. One of our cases died of neumonia and generalised septicæmia. Seven cases ade a complete recovery.

Treatment is fourfold and must include :—

(a) Measures to eradicate the focus of gonococcal infection om the genito-urinary canal, including the prostate, the eminal vesicles, and other infected areas.

(b) Appropriate treatment to the inflamed joints and ri-articular tissues, to alleviate pain and prevent the rmation of adhesions, which lead to subsequent deformity the joints.

(c) Treatment through the blood stream, by chemotherapy, vaccine therapy, or protein shock, to combat the systemic infection and the toxæmia.

(d) Attention to the general health of the patient by rest in bed, good nursing to prevent the development of bed-sores, nourishing food, and at a later date the administration of tonics to overcome the cachexia and debility.

The skin itself requires practically no treatment, apart from sponging to keep it active and clean. An antiseptic, such as equal parts of eucalyptus and olive oil, or an ointment may be applied, to soften the crusts and favour desquamation. Personal cleanliness is insisted on by Chauffard, who recommends dressing with plain boiled water and frequent washings with soap to prevent the development of further vesicles of keratoderma. Mehliss relies on sun baths for limiting the process. Antiseptic baths are comforting in the declining stages. It is essential to establish drainage from every infected urethra by irrigation, and later on by massage of the prostate and vesicles, and by instrumentation if required.

Treatment through the blood stream by vaccines has been advocated in most of the reported cases. Dyke, Bogrow, Scholtz, and Little have all reported favourably on judicious vaccine treatment. In the present series of cases, and in two cases previously reported by us, gradually increasing doses of a polyvalent detoxicated vaccine appeared to influence the general toxæmia, the arthritis, and the associated urethritis very favourably in most of the cases. It is important, especially in very toxic cases, to administer very minute doses initially and to watch carefully the local, the focal, and the general reaction to the vaccine. In cases of long standing, and in those in which there is a secondary infection of the urethra by other organisms, it is advantageous to administer an autogenous vaccine prepared from a culture of the urethral and prostatic secretion or from the patient's urine, in combination with a polyvalent detoxicated gonococcal vaccine. The former ensures specificity of the vaccine, and the latter is possibly of stronger antigenic power because of its polyvalent character. In a previous communication we referred to the fact that some cases of keratoderma blennorrhagicum do not react initially to vaccine treatment. This is most likely to occur in the severe septicæmic cases, such as those which one of us had the opportunity of observing in military hospitals during the war under the care of Bolam and Harrison. Lundie reported a case in which the keratoderma developed during the administration of vaccines. Montpelier also has not been successful with vaccine therapy in this condition. In three of the more profoundly toxic patients in this series, who suffered from marked cachexia and emaciation, vaccines did not produce a favourable response initially, and the method of treatment by an arsenobenzol preparation administered intravenously—which was originally advocated by Bolam—appeared to stimulate the patient's resistance to the infection and lead to a definite improvement. Minute doses of neokharsivan (0·001 to 0·005 g.) were given at intervals of three or four days until the more toxic symptoms had subsided, as shown by subsidence of temperature, cleaning of the tongue, lessening of the arthritic pains, and improvement of the pulse and the general constitutional disturbances. As soon as this improvement is apparent in these grave cases, vaccines may be administered in careful doses, and they undoubtedly accelerate the progress towards recovery. It is a notable fact that even in the most severe cases the skin makes a complete recovery, no scarring is left, and during convalescence the patients put on weight rapidly and make an unexpectedly good recovery in view of the formidable clinical picture. We are in complete agreement with Little that judicious vaccine therapy "has materially lessened the mortality and cut short the duration of the disease."

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CALCIUM AND PHOSPHORUS METABOLISM IN LATE RICKETS.

A CASE WITH PARATHYROID HYPERPLASIA.

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THE occurrence of hyperparathyroidism in some diseases of bone is now established, and is recognised by the presence of an excessive concentration of calcium in the serum with a low concentration of inorganic phosphorus, and by an increased excretion of calcium, particularly in the urine. Since the success of Mandl's [1] experiment in removing a parathyroid in osteitis fibrosa, many cases of bone malacia and hyperparathyroidism have been recognised and treated in the same way with a considerable measure of success; these cases have been collected by Hunter [2] and by Barr and Bulger.[3] Such results in desperate conditions make it of importance that these opportunities should not be missed, but because of their situation large tumours of the parathyroid may be unrecognisable without exploration, and it is unusual for palpation of the neck to give a clu The diagnosis is made on biochemical grounds a rule, and may be made with confidence when th syndrome is complete; but in view of the varyin response of different individuals to injections parathyroid hormone and of the same individual different times,[4] it is possible that parathyroid ove activity may occur without producing the complet syndrome, and that the parathyroids should b explored when the indications of hyperparathy roidism are incomplete. Observations on such a ca are recorded here.

CASE REPORT.

The patient was a coloured errand boy who at the age of underwent a very brief course of antisyphilitic treatmen for vague pains in the shins; the diagnosis was doubtfu but the treatment was successful, and the pains vanishe Two years later he began to have pain in his knees an difficulty in walking. The pain spread slowly through h limbs and body and he became weak and finally unab to work. He was an orphan, and when he was 17 h earnings became the sole support of himself and two grand parents; their diet consisted of bread, tea, and scraps of mea with potato and rice once a week. He was quite definit that the pains had begun before this spell of semi starvation.

Condition on admission.—He was admitted to hospita in April, 1928, at the age of 19 years. He had the waddlin gait of a muscular dystrophy, but there was no localised wasting or hypertrophy, and there were no neurologica changes. The cerebro-spinal fluid contained 10 cells pe c.mm., and gave a weak positive Wassermann reaction the blood Wassermann was negative. The urine was no abnormal but was frequently alkaline. The serum calcium was 12·6 and 14·0 mg., and the inorganic phosphoru 1·2 mg. per 100 c.cm. Skiagrams showed obliteration o normal bone structure, decalcification, and patchy scleros of the bones of the pelvis, which had not united, and similar changes in the upper ends of the femora. The pelvic cavity was distorted. The head of the femur and the acetabulum were ill-defined. The compact bone of the femur and tibia was thin, and the trabeculæ frail. The epiphyseal cartilages of the wrists were thick, corresponding to an age of 13 years, and the radial epiphyses were wide and cupped, but the line of ossification was regular. The other epiphyses showed similar delay in uniting. The ribs were poorly calcified, and the costochondral junctions were enlarged. No cysts were found. He was treated with a liberal diet, crude cod-liver oil, and cod-liver oil concentrate, and with potassium iodide and mercury. After ten months there was much less pain, but the X rays showed no change. He was discharged.

Condition on readmission.—The present observations began on his readmission in July, 1929. He was bedridden, weak, and full of pain. He had been reasonably fed and nutrition was good. The chest was very deformed, the upper part having collapsed, the sternum projecting forwards, and the lower ribs being splayed out. The whole thorax was soft and yielding. There was marked kyphosis and scoliosis; the neck was shortened and felt weak and painful. The long bones remained straight and the limbs were not shortened. The muscles were weak. The remainder of the physical examination showed nothing of note. The urine contained no sugar or protein, and no calcium deposit; the specific gravity was 1010 to 1038. The serum calcium was 9·0 mg. per cent.; this was the only occasion before the operation on which it was under 11 mg. The inorganic phosphorus was 1·5 mg. The stoo and fat absorption were normal.

On a liberal diet, cod-liver oil and 18,000 units[5] of irradiated ergosterol a day, his condition became worse. The inorganic phosphorus fell to under 1 mg. in December.

The calcium and phosphorus balance were positive on a daily diet containing 450 mg. of calcium and 900 mg. of phosphorus (see Chart, period 1), but when the calcium intake was reduced to 210 mg. the balance of calcium became negative (periods 2 and 3); on such an intake the calcium balance is normally negative,[6] and the loss in this case was not abnormal. The urine contained 40 to 100 mg. of calcium per day, a normal amount. In period 4 the addition of sodium phosphate (Na_2HPO_4) possibly caused a small rise in serum phosphorus, but the loss of calcium was increased. In February, 1930, sugar appeared in the urine with a normal blood-sugar, and the blood-urea was 60 mg. per cent., although the urine remained of good concentration and contained 2·8 per cent. of urea in a urea-concentration test. There were no clinical signs of nephritis, but the urine contained a few red blood-cells.

On April 9th Prof. C. M. Saint explored the neck. External to the right lobe of the thyroid was a small ovoid body, [illegible] in. by [illegible] in., of uncertain nature; this and part of the thyroid were removed. The ovoid body weighed 850 mg. and proved to be composed of parathyroid tissue. On section it had a uniform appearance, being composed of epithelial cells and very scanty connective tissue. The epithelial cells had abundant protoplasm showing neutrophil staining, and the nuclei showed a fine chromatin network. Some of these epithelial cells were arranged in sheets, and here they were polygonal in form; elsewhere they were columnar or even palisade, and were arranged in groups, usually one cell deep around a central blood capillary. Under the capsule and adjacent to the trabeculæ passing into the gland were epithelial cells resembling the polygonal cells, but having clear, almost unstained protoplasm; these were identical with the "principal" cells of the normal parathyroid (Welsh [7]). There was no fatty tissue among the epithelial cells. No oxyphil cells were present. It was difficult to be sure whether the condition was a hyperplasia or an adenoma of the parathyroid, but the histological picture on the whole suggested a hyperplasia. There were no manifestations of tetany after the operation. The serum calcium during the following three months was certainly slightly lower, but it then rose to its former somewhat high level. The serum inorganic phosphorus was increased above the level of the preceding four months, but remained much below the normal level of 3 mg. The blood-urea fell to 40 mg., and sugar disappeared from the urine. The disabling pain gradually lessened, and the chief disability of which he continued to complain was pain in the neck, which occurred as soon as he sat up and had to support the weight of his head.

On a diet the same as in period 1 he was, in period 5, retaining more calcium but, on account of a doubled urinary phosphorus excretion, the phosphorus balance was negative. The addition of milk (period 6) gave a small positive balance of both elements. Addition of sodium phosphate (period 7) upset the calcium balance (cf. period 4), but by giving calcium lactate in the forenoon and sodium phosphate in the afternoon (period 8) a considerable positive balance of calcium and phosphorus was obtained. Addition of ergosterol and cod-liver oil to this had no effect.

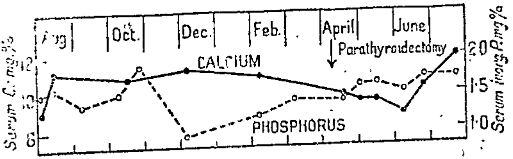
In August, 1930, the slight improvement was maintained, but the skiagrams showed no change in the calcification of the bones, and the state of the epiphyses was identical with their state in 1928. The patient was transferred to the infirmary. Visits to him in October and November showed no further progress, but the serum phosphorus fell to 1·25 and 0·94 mg., which was attributed to the relative poverty of the infirmary diet in vitamins and to lack of sunlight.

DISCUSSION.

In an exhaustive discussion of the bone malacias Dawson and Struthers [8] emphasise the similarities in the processes underlying osteomalacia, rickets, late rickets, and osteitis fibrosa. The distinctions depend on differences in age of onset and difference in preponderance of the various processes concerned. In rickets endochondral bone formation is upset; in osteomalacia, a disease of adult life, this has already ceased. In rickets the bones of the limbs are most affected, in osteomalacia the pelvis and vertebræ. In late rickets epiphyseal changes are slight and decalcification of the diaphyses and of cancellous and endosteal bone predominant. Osteitis fibrosa is characterised by the extensive development of fibrous tissue in the bones, and the formation of cysts and tumour-like areas. In all, the serum inorganic phosphorus is much reduced, which distinguishes them from renal rickets, in which the renal insufficiency causes phosphorus retention and a high serum inorganic phosphorus.[9] The serum calcium is usually low in osteomalacia,[10] and normal or low in rickets,[11] but in osteitis fibrosa generalisata it is frequently raised.[2 3]

The case described showed the accentuation of the malacia in the bones of the trunk characteristic of osteomalacia. It was distinguished from osteomalacia by its onset in adolescence, the widening of the epiphyses and the lack of ossification in the epiphyseal cartilages, while the age-incidence, the relative preservation of the long bones, and the good definition of the epiphyseal lines separate it from rickets. Late rickets appeared to be the correct classification.

Large doses of parathyroid hormone will cause absorption of bone [12] and a state resembling osteitis fibrosa [13]; the serum calcium is raised much above the normal level and the excretion of calcium is increased, especially in the urine.[14] The serum inorganic phosphorus falls unless the amount of hormone is excessive.[15] Natural hyperparathyroidism appears to produce the same results. In many cases of bone dystrophy, and most often in osteitis fibrosa generalisata, parathyroid tumours or hyperplasias have been found, and in some a high serum and urinary calcium have suggested that the parathyroid abnormality was the cause of the malacia, a suggestion sometimes supported by the result of excision. This subject has been reviewed recently by Barr and Bulger.[3]



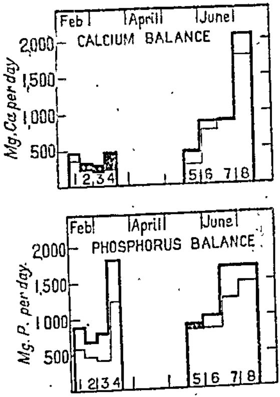


Chart showing changes in serum calcium and inorganic phosphorus above, and in calcium and phosphorus balance below. The heavy line indicates the intake and the lighter the output; shaded areas represent negative balances. The metabolism periods are numbered, and the diet and medication in each is indicated in the text. (1 = ward diet; 2 and 3 = low calcium diet; 4 = low calcium diet plus sodium phosphate.)

The parathyroids readily hypertrophy under influences inimical to good bone formation; examples are rickets in rats [16] and in children,[17] want of sunlight,[18] or a low intake of calcium.[19] Parathyroid hyperplasia has been found in secondary carcinomatous infiltration of bone [20] and in multiple myelomata.[3] In these the hyperplasia is certainly a sequel or concomitant and not the cause of the bone disorder, and this is probably true also in osteomalacia and late rickets. Barr and Bulger consider the possibility that even in osteitis fibrosa the primary disorder is in the bones. A comparison may be made with Graves's disease, in which the thyroid is persuaded to play the leading part but the fundamental disorder may lie elsewhere. In many of these cases, however, the parathyroid is undoubtedly acting beyond the needs of the occasion, even if these be increased, and this activity becomes a factor aggravating the malacia. Excision of such overacting glands leads to the relief of pain, cessation of excessive calcium excretion, and to some degree of recalcification. The serum calcium and inorganic phosphorus return to normal figures. The final result, which may be attained only after a prolonged period, is seldom recorded, but may be excellent.

One of the most striking features of this case was the low level of the serum inorganic phosphorus, which resisted the influence of diet, light, and vitamins. It would probably have been better to have employed large doses of cod-liver oil concentrate instead of the irradiated ergosterol, since there is some evidence that the concentrate is the more effective in such cases.[21 22 23] Such resistance is not customary in rickets and osteomalacia,[10] and this forced us to the consideration of hyperparathyroidism. In support of this was the abnormally high serum calcium in his early records and its persistence at a high normal level. The absence of excessive calcium excretion was a strong point to the contrary, but this might be explained on the assumption that the parathyroids, although no longer able to cause gross hypercalcæmia and calcium loss, might yet be able to prevent recalcification by depressing the level of the serum inorganic phosphorus.

The parathyroid removed weighed 850 mg.; the normal weight of a parathyroid is given by Quain[24] as between 10 and 100 mg., and by Schafer[25] as 30 mg. It is certain that great variations occur,[26] but this gland is definitely outside the normal range. Its condition was one of simple hyperplasia, but it was evidently not very active, for the biochemical effects of its removal—though perceptible—were small, and it was evident that this parathyroid was not directly responsible for the low serum inorganic phosphorus.

The low threshold of the kidney for phosphorus was probably a factor of importance in causing the persistent depression of inorganic phosphorus in the serum. Phosphorus was excreted and concentrated 50 to 100 times when the serum phosphorus was around 1 mg. per cent.; the normal threshold is 2·8 mg.[27] but the continued excretion and concentration of phosphorus appears not to be uncommon in abnormalities of calcium phosphorus metabolism with a low serum phosphorus.[28] The changes in the threshold for sugar and in the blood-urea were further evidences of changes in the function of the kidney. Minor changes in renal function may not be uncommon in the bone malacias,[29] but are small in degree when compared with those found in renal rickets.

The clinical result of the excision was not dramatic, but the patient's pain was considerably less afterwards. Such relief by itself would be worth attaining by a comparatively simple operation, but the possibility of producing tetany must be remembered. The possibility always arises, in assessing the result of treatment in these cases, that subsequent improvement is due to a natural remission of the disease, and a decision can only be obtained from the study of further cases.

SUMMARY.

1. A case of late rickets with a partial hyperparathyroid syndrome is described.
2. The effect of excision of an enlarged parathyroid was the relief of pain without any effective change in calcium phosphorus metabolism.

The methods employed were those described in an earlier paper.[28]

We wish to thank Prof. A. W. Falconer and Prof. C. M. Saint for permission to study this case while under their care, and to Prof. B. J. Ryrie for his interest and helpful criticism.

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EMPYEMA THORACIS.

A METHOD OF MAINTAINING NEGATIVE PRESSURE DRAINAGE.

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THE necessity of maintaining air-tight drainage of the chest after open thoracotomy for empyema is now an accepted part of treatment. It is not proposed to consider here the time at which an infected pleural effusion should be drained, this has been widely discussed in various publications; but in a large majority of empyemata in adults the time does arise when aspiration or intercostal drainage must be replaced by some method which will allow more complete evacuation of the contents of the empyema cavity.

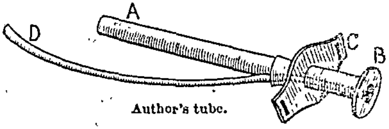
It is at this stage that some comparatively simple and yet efficient method, which allows of (*a*) adequate drainage, (*b*) maintenance of a negative pressure within the infected cavity, and (*c*) irrigation of the cavity without risk, should be adopted.

With these objects in view a rubber tube of special structure was made for me some seven years ago and, as apart from some small modifications, it has stood the test of time, this method of treatment of empyema appears worthy of record.

The tube consists of a fairly large-bore main tube (A), made in four sizes, Nos. 42, 45, 48, 51, French scale, at the end of which is a flat circular flange (B). Passing into the wall of the main tube about 2½ inches from the flange is a fine tube (D) of the size commonly used for Carrel-Dakin treatment. This opens on the surface of the flange adjacent to the main opening. The opposite end is free from the main tube and has a funnel-shaped opening. A second flange with a rubber cuff, movable on the double tube to allow adjustment to the varying thickness of the chest wall, completes the essential part of the apparatus (C). (Fig. 1.)

The method of use is as follows: After aspiration of definite pus from the pleural cavity, the area of proposed rib resection is infiltrated with a local anæsthetic and incised down to the rib. A portion, about 1½ inches, is resected and the posterior periosteum and parietal pleura incised for about one inch. The excessive pus as it comes out of the pleura is removed by suction and then by means of the suction tube the whole of the fluid contents of the empyema cavity are evacuated. All free flakes are removed and the walls of the cavity are gently wiped to remove the lining lymph membrane which will tend to impede subsequent drainage. The flange of the drainage-tube is then folded as small as possible in sponge-holding forceps and introduced into the cavity. The forceps on opening allow expansion of the flange and are then withdrawn, leaving the tube in situ. If the opening in the pleura has been enlarged by the manipulations sufficiently to allow easy withdrawal of the flange it should be partially sutured around the tube. The superficial structures are approximated with figure-of-eight silkworm gut sutures passing through muscles in the deeper parts and the skin and subcutaneous tissues superficially. The outer flange is then adjusted firmly to the chest wall, a single layer of gauze only intervening. Tapes are threaded into the lateral openings in this flange and fastened around the chest. Dressings are adjusted under a many-tailed bandage. Both tubes are controlled by spigots.

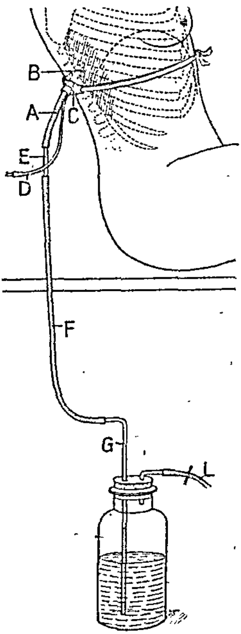
FIG. 1.



Author's tube.

When the patient has been comfortably settled in bed the spigot in the main tube is removed and it is connected with a tube passing beneath fluid in a bottle beneath the bed (E, F, G). (Fig. 2.) The patient is now requested to cough and air will be forced out of the empyema cavity and the drainage system and will bubble through the fluid in the bottle. Following this either the lung will expand to a degree corresponding to the air evacuated or the fluid will be drawn up the glass tube in the lower end of the drainage system, which column of fluid will maintain a constant pull or negative pressure corresponding to its height upon the visceral pleura. Before disconnecting the bottle for purposes of evacuation of the fluid and the purulent contents, the tube (F) is closed off by means of a clip or artery forceps, to prevent air entering the empyema cavity, and this is not removed until the tube and bottle are reconnected. Forty-eight hours later, irrigation of the cavity is commenced but before any large quantity of fluid is introduced it is essential to ensure that no bronchial fistula is present. A small quantity of Carrel-Dakin's solution is drawn up into a syringe, the irrigating tube is compressed with the fingers and the spigot withdrawn. The syringe is connected and, releasing the compression on the tube, the fluid is allowed to enter the cavity. An attempt is now made by altering the posture of the patient to ensure the fluid flowing over every part of the visceral pleura. An irritating cough or a cough associated with the patient tasting the fluid is evidence of a bronchial fistula of greater or lesser size and contraindicates filling of the empyema cavity. (Careful instillations of small quantities may be possible if the fistula is small and high in the cavity.) If there is no evidence of a bronchial fistula the cavity may be almost completely filled by raising the main tube and placing the patient in such a position that the drainage opening is uppermost.

FIG 2.



The tube in use.

The great and apparently the only risk, in the absence of a bronchial fistula, of irrigation of an empyema is in the production of a positive pressure which may lead to air embolism. By irrigating through the small tube with free drainage via the main tube into the bottle this risk is eliminated. (Free drainage through the latter is shown by the movements of the columns of fluid during respiration.)

Irrigation is carried out two or three *times* daily, but in particularly severe infections a continuous irrigation may be arranged by connecting the irrigating tube (D) to a slow drip apparatus such as is used for continuous rectal salines. Superficial dressings are carried out daily but no attempt is made to remove the tube until the empyema cavity is obliterated. This can be confirmed by X ray examination, or if this is not available, by disconnecting the empyema tube from the bottle, &c., and passing a gum elastic bougie through the lumen. The tubes vary slightly in length from 8 to 8½ inches, and when the bougie comes against the lung at this distance from the entrance to the tube it can be inferred that the lung is fully expanded. The tube is then withdrawn and only superficial dressings should be applied as the track in the chest wall will heal in four or five days.

In chronic empyema, due either to delayed diagnosis or accompanied by sinus formation and resulting from inadequate treatment, it may be necessary to increase the negative pressure within the cavity. This can easily be obtained by attaching a Potain's syringe to the small rubber tube (L) and exhausting the air from the drainage bottle. The tube is then compressed by a clamp and the syringe removed. This operation is repeated as and when required. The negative pressure in the whole drainage system may be measured by placing a T-tube in the drainage-tube between the chest and drainage bottle, the vertical part being led off to a manometer.

I am indebted to the Genito-Urinary Manufacturing Co., Ltd., 28, Devonshire-street, W.1, for their coöperation both in the making of the original tubes and the subsequent modifications.

THE NEUROLOGICAL COMPLICATIONS OF SERUM TREATMENT.

WITH REPORT OF A CASE.

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Neurological complications of serum treatment are very uncommon. During the 40 years since this form of treatment was instituted reports of less than 50 cases have appeared in the literature and of only one case in this country. It is possible, however, that minor neurological complications are more common than they appear to be, especially as in some of the cases reported by French observers the disability was slight and discovered accidentally only at a long interval after treatment with serum. The following case is reported because of the unusual ætiology of the neurological condition concerned and of the problems in diagnosis which naturally arise from it.

Accidents associated with the use of sera in treatment were first mentioned by Roux, Martin, and Chaillons at a medical congress in Budapest in 1894, while later they were grouped by von Pirquet and Schick under the term serum-sickness. Cases of paralysis resulting from the use of serum were reported early—by Engelman in 1897, by Grünberger in 1904, and by Gangolphe and Gardère in 1908. These writers discussed the rôle of serum treatment in the causation of the paralysis without, however, definitely relating the two conditions. In 1910 Thaon recognised the association of the paralysis with serum-sickness and with serum treatment, but attracted little attention. Subsequently, however, accounts of certain neurological complications of serum treatment were given by Lhermitte in 1919, by Carniol, Durand, and Goujard in 1920, by Étienne in 1928, and by Foster Kennedy in 1929; while in 1923 Rolleston drew attention to reports of such cases.

CASE REPORT.

Brachial neuritis and amyotrophy associated with serum-sickness.—On Jan. 1st, 1931, a male, aged 22 years, was admitted to the Hornsey and Finchley Isolation Hospital on the fourth day of a typical attack of scarlet fever. He was given 10 c.cm. of anti-scarlet fever serum. The following day his temperature was normal. On the twelfth day after the injection of serum the temperature rose to 100·5°F., an urticarial eruption appeared, and the patient complained of pains in the limbs. On the fifteenth day he complained that he could not hold up his right arm. On the following day he complained again of being unable to raise the right arm, and later in the day of pins and needles in the outer aspect of the right forearm and the first and second fingers of the right hand.

He was examined by me on the seventeenth day after the injection of serum, when he complained of being unable to raise the right arm and of aching in the right shoulder. There was definite wasting of the right deltoid, slight wasting of the supraspinatus, doubtful wasting of the infraspinatus, and some winging of the right scapula. Abduction of the right upper arm was limited, and it was impossible to raise the right elbow more than a short distance from the side. The movement of pushing the right hand forward with the forearm extended was weak on the right side compared with the same movement on the left side. The other muscles of the right shoulder-girdle and upper limb were normal, and those of the left shoulder-girdle and upper limb were also normal. There was moderate diminution of sensation to cotton-wool and pinprick over the outer aspect of the right upper arm, most obvious at the level of the insertion of the deltoid. Elsewhere the motor and sensory functions were normal. The supinator, biceps and triceps jerks were present and equal on the two sides. The abdominal reflexes were present and equal; the knee- and ankle-jerks present and equal, and both plantar reflexes flexor.

On the nineteenth day after the injection of serum there was slight aching in the left upper limb in the region of the shoulder, but no impairment of movement. On the twenty-third day there was vomiting, and albumin appeared in the urine—the first symptoms of what proved to be an attack of acute nephritis. On the twenty-fifth day there was no movement of abduction in the right upper arm. Five weeks after the injection of serum and three weeks after the onset of the paralysis, there was marked wasting of the right deltoid, but sensation was returning over the outer aspect of the right shoulder. Seven weeks after the onset sensation was normal, but there was still definite wasting of the right deltoid.

Unfortunately, owing to the supervention of acute nephritis, it was impossible to carry out any local treatment of the affected muscles beyond relieving the strain upon them as much as possible. Nevertheless, gradual improvement occurred and, at the time of discharge 13 weeks after the onset of the paralysis, there remained only some impairment of function and wasting of the right deltoid.

In this case the paralysis supervened a few days after the onset of serum-sickness and while the latter was at its height, was most pronounced in the right deltoid, but also affected the spinati and the serratus magnus to a lesser degree. It was accompanied by spontaneous sensations which were evidently radicular in origin; and by impairment of sensation over an area corresponding to the distribution of the fifth cervical sensory root. Pains, also apparently of a radicular type, appeared about the left shoulder too, but disappeared without the development of any motor disability. Pronounced wasting of one of the affected muscles was a prominent feature. Recovery was gradual but slow, and independent of any local treatment.

The clinical picture was evidently that of a radiculitis affecting chiefly the fifth cervical root on the right side, but also involving in a minor degree one or two sensory roots below that level and also sensory roots on the left side. The relation of the condition to the serum-sickness was evident, and was identical with that of the cases of amyotrophy reported in France. In this case, however, subjective sensory disturbances were less obvious, and the objective sensory changes more pronounced than in most of the cases previously reported.

THE CLINICAL COURSE.

In the 42 cases which I have been able to review, the neurological condition followed the use of antitetanic serum in 26 cases, of antistreptococcal and antidiphtheritic serum in four cases each, of antipneumococcal and anti-scarlet fever serum in three cases each, and of antityphoid inoculation and an unidentified antituberculous serum in one case each. In many cases it followed the first injection of the serum, while in others it followed a second or subsequent injection given some years after the first. In the majority of cases it was associated with the more common symptoms of serum-sickness, but in a few cases it occurred without any evidence of serum-sickness, though at the interval after the injection of serum at which serum-sickness might have been expected to appear.

In every case the clinical course follows the same general type. From five to ten days after the injection of serum, usually about the eighth day, the patient develops the usual symptoms of serum-sickness—an urticarial rash of general distribution, pains in the limbs and joints, in some cases swelling of individual joints and fever, and in some cases headache and vomiting. After an interval of from two to five days the pains become very severe intermittent and stabbing, in some cases in both upper and lower limbs, in others in the distribution of a peripheral nerve, but in the majority of cases in one or more segmental areas on one or both sides. This pain continues in a severe form for a period varying from two days to one month. In most cases muscular weakness and wasting appear early, the reflexes in the corresponding segments are diminished or abolished and, in the lower motor neurone group, variations in the electrical reactions occur. Objective sensory changes are slight or completely absent. Rarely the original local pain is slight and transient, while occasionally the muscular weakness is not discovered until the patient tries to return to work. Improvement in the motor functions occurs, and complete recovery takes place in from one to 18 months, though occasionally some residual weakness and wasting persist.

THE CLINICAL FEATURES.

The cases fall naturally into four distinct groups, which are most conveniently considered separately. They may be apparently *radicular* in type, with the motor and sensory changes confined to one or both upper limbs, and especially to the proximal portion of the limb. Less often they appear to be *neuritic* in type, the changes occurring entirely in the distribution of one or more peripheral nerves. Occasionally they are apparently of a *polyneuritic* type, the clinical picture resembling that of polyneuritis—either motor and sensory mixed, or entirely motor. Rarely they present neurological complications, which appear to be *central* in origin, the symptoms and physical signs indicating a disturbance within the skull or in the brain itself.

(1) The *radicular* type is the most common, supplying 23 out of the 42 cases under review. Cases of this type have been described by Thaon, Vincent and Richet, Caulhois, Dyke, Lhermitte, Marchal, Mouriquand and Dechaume and Ravault, Foster Kennedy, Goujard, Sainton and Descauts and Rogers, Benech and Brénas, S. Thomas, Souques and Lafourcade and Terris, and by Léri and Escalier. The condition has followed chiefly the use of antitetanic serum, but also that of antidiphtheritic, antistreptococcal, and anti-scarlet fever serum. Probably the best clinical description is that given by Lhermitte in 1924, upon which the following account of the condition is based.

From five to ten days after the injection of serum the general symptoms of serum-sickness appear. After from two to five days, while the serum-sickness is still active, the patient complains of severe, stabbing, and intermittent pain radiating into one or both upper limbs, or into one or both shoulders. This pain disappears in two or three days, but when severe may persist for from five to 30 days. Shortly after the appearance of the pain the patient notices some motor disability in one or both upper limbs, but occasionally he may not notice it until the pain has disappeared.

On examination paralysis of the muscles of one or both upper limbs is found, those in the proximal portion of the limb being affected chiefly or alone. The corresponding movements are weak or impossible. Of the 23 cases under review both upper limbs were affected in nine and one upper limb in 14. There is rapid wasting of the affected muscles, and in one case, reported by Sainton and Descauts and Rogers, fibrillation was present in the outer part of the triceps. The muscles most often affected are those supplied from the fifth and sixth cervical segments—the deltoid, spinati, serratus magnus, biceps, brachialis anticus, and triceps. Most often the changes are confined to the deltoid, spinati, and serratus magnus. Occasionally the supinators of the forearm and the extensors of the wrist are affected as well, and at the upper level the anterior part of the trapezius, the rhomboids, and the pectoralis major may be involved. Generally, however, the paralyses are limited to a number of the muscles supplied from the fifth and sixth cervical segments and present the picture of an incomplete or complete Erb-Duchenne paralysis of acute onset. Rarely one muscle alone is affected, most often the serratus magnus; but when several muscles are involved the brunt of the disability appears to fall upon a portion or the whole of one muscle, usually the deltoid, leaving the others moderately or slightly affected. Again, when the two upper limbs are involved, the same individual muscles on the two sides are not necessarily those most severely affected. For example, on one side the serratus magnus may be the muscle completely paralysed, while on the other side the spinati may be most affected. The rapid appearance of wasting in the affected muscles has already been mentioned. The electrical reactions vary from simple diminution of faradic excitability to reaction of degeneration or complete absence of any response, according to the degree to which the particular muscle is involved.

Rarely, when the biceps, triceps, and long supinator are affected, the corresponding deep reflexes are diminished or absent. Objective sensory changes are usually absent, though occasionally an area of hypoæsthesia and hypalgesia is found over the outer aspect of the shoulder and upper arm. Pressure over the trunks of the brachial plexus is usually painless, but sometimes pressure over the affected muscles produces severe pain.

With the relief of pain some improvement in the motor functions takes place, but frequently wasting persists for a long time. Just as during the acute phase all the muscles supplied by the fifth and sixth cervical roots are not equally affected, so during recovery the return of function varies considerably with the individual muscles.

(2) Cases of the *neuritic* type, suggesting involvement of a peripheral nerve, have been described by Sicard and Cantaloube, Katzenelbogen, Étienne and Benech, A. Thomas, and by Bourrat. Six of the cases under review were of this type. In four the musculospiral nerve appeared to be involved: in one case above the branch to the triceps; in two cases below the branch to the triceps; and in one case on both sides. In one case the external popliteal nerve on one side was involved, and in one case both sciatic nerves appeared to be affected. In the latter case it was possible that the nerve-roots were involved and not the peripheral nerves. The clinical picture develops in the same way as in those cases described as radicular in type. The severe local pain appears in the distribution of the affected nerve, and paralysis

appears suddenly within 24 or 48 hours. The clinical picture may be understood from the following summary of Sicard and Cantaloube's first case.

> A young man received several superficial wounds as the result of an accident, and as a prophylactic measure was injected with 20 c.cm. of antitetanic serum. On the eighth day after the injection he developed serum-sickness, and 48 hours later had a severe attack of pain in the left upper limb. By the next morning he had developed drop-wrist on the left side. Ten days later there was loss of electrical excitability in the left musculospiral nerve, and paralysis of and reaction of degeneration in all the muscles supplied by the nerve below the branch to the triceps.

(3) The *polyneuritic* type occurred in seven cases. Such cases have been described by Sézary and Dessaint, Foster Kennedy, Étienne, Babonneix, Filotico, and by Bourrat. In the majority the condition developed under the same circumstances and in the same relation to the serum-sickness as in the other groups. In some cases a frank polyneuritis develops, with general pains, clumsiness of the limbs, motor weakness, diminution of sensation in the distal parts of the limbs, ataxic or steppage gait, and diminution or loss of tendon reflexes. Such cases frequently recover rapidly; Bourrat's patient, in whom the condition developed with serum-sickness after an injection of antistreptococcal serum, was quite well in six weeks. Occasionally the objective sensory changes are absent and the case is characterised by clumsiness of the limbs, ataxic gait and diminution or loss of tendon reflexes, a clinical picture grouped under the term "pseudo-tabes" by French writers. Filotico's case was unusual in that, in addition to the presence of fully developed motor and sensory symptoms of polyneuritis, there was complete paralysis of the left facial nerve of a peripheral type, with loss of the sense taste over the left half of the tongue.

(4) There were six cases of the *central* type, all of them with physical signs which raised important questions in diagnosis. They have been described by Mason, Morichau-Beauchant, Foster Kennedy, and by Bourrat. In five cases papillœdema was present. In two of Mason's patients papillœdema appeared after the injection of antipneumococcal serum, and disappeared later; while in his third case death occurred while it was still evident. In Morichau-Beauchant's case a right-sided hemiparesis appeared two days after the onset of serum-sickness. Bourrat recorded the case of a patient who developed serum-sickness and severe headache after the injection of a prophylactic dose of antitetanic serum. On the fifteenth day after the injection the patient developed pain in the left orbit and amblyopia in the left eye. On examination, swelling of the left optic disc, engorgement of the retinal veins, and a central scotoma in the left eye were found. When examined two years later, the patient showed no physical signs. In Foster Kennedy's case serum-sickness developed four days after a prophylactic injection of serum against scarlet fever. The patient showed signs of a meningeal reaction at the same time, and three days later had developed aphasia and a right-sided hemiparesis. When examined five days after the onset, he showed a right hemiplegia, total alexia, jargon aphasia, persistent headache, and the clinical picture of meningeal irritation. There was extreme swelling of both optic discs, and both retinæ were also œdematous. The pressure of the cerebro-spinal fluid was much increased, and the fluid contained 14 lymphocytes per c.mm. The condition gradually improved during the next 10 days, and four and a half weeks from the onset the patient was free of symptoms and physical signs.

THE CEREBRO-SPINAL FLUID.

In the majority of the cases there is no record of an examination of the cerebro-spinal fluid. In Foster Kennedy's case of aphasia and hemiplegia the cerebro-spinal fluid was under pressure and contained 14 cells per c.mm. In Souques and Lafourcade and Terris' case, in which both upper limbs were affected four days after the onset of serum-sickness, the cerebro-spinal fluid contained 2 cells per c.mm. and 0·20 per cent. of protein.

A clue to the changes in the cerebro-spinal fluid is, however, provided by the findings of de Lavergne and Abel, who examined the cerebro-spinal fluid from two to eight days after the onset of serum-sickness in patients who had received prophylactic injections of antidiphtheritic, antitetanic or antipneumococcal serum. They found a slight reduction in the quantity of glucose, from 5 to 28 cells (chiefly lymphocytes, but sometimes a few polymorphs), no increase in albumin, and a definite increase in pressure. Specimens collected at the onset of the eruption showed only a decrease in glucose; those from two to four days after the onset showed the characteristic features—a decrease in glucose and hypertension, with an increase in the cell count; and those at the time the eruption was subsiding a practically normal cerebro-spinal fluid.

RELATION TO SERUM TREATMENT AND SERUM-SICKNESS.

In all the cases under review the neurological condition appeared after the injection of a serum, in many cases the first dose of serum the patient had received. In practically all the cases it was associated with the more general symptoms of serum-sickness, and appeared as a rule from two to five days after the onset of the urticarial rash. In a few cases there was no external evidence of serum-sickness but the neurological symptoms developed at the time serum-sickness usually appears. There was no definite relationship between the site of injuries or of injection and that of the paralysis which developed subsequently after the onset of serum-sickness.

PATHOGENESIS.

Various hypotheses have been propounded to explain the appearance of paralyses and other neurological signs in these cases. De Lavergne and Abel regarded the meningeal reaction in their cases as proceeding pari passu with the urticaria, and related it to the appearance of headache, nausea, and vomiting in some cases of serum-sickness. They believed that this meningeal reaction might lead to radiculitis in some cases, and especially in those in which the upper roots of the brachial plexus on one or both sides are involved. The curious selectivity of the condition in these cases might be explained by the anatomical arrangement of the periradicular thecal sheaths. Sainton has suggested that the amyotrophic group, in which the shoulder-girdle is affected, might be the result of strangling of the nerve roots by perifascicular or epidural œdema. Mouriquand and Dechaume and Ravault believed that the paralyses in the region of the shoulder could be explained as reflex paralysis following serum-arthritis, an explanation for which they were unable to produce any satisfactory evidence. Sicard and Cantaloube suggested that the musculospiral paralyses described by them were the result of inflammatory changes in the connective tissue surrounding the nerve in the musculospiral groove; while Lhermitte and Morichau-Beauchant regarded the paralyses, especially those in the region of the shoulder, as the result of a toxæmia, and closely allied to the paralyses sometimes seen after typhoid fever. Foster Kennedy believed that toxicity of the serum and urticarial œdema of the perineural tissues were both important factors, the latter probably accounting for the cerebral cases and for the paralyses of single long nerves. He pointed out that in the latter group the paralyses were obviously paralyses by compression and not by destruction of nervous parenchyma, and that the site of the paralysis coincided with that of the greater incidence of œdema, there being entire absence of nerve involvement elsewhere.

It is doubtful if any one pathogenesis can explain all the cases. Local and general œdema would explain the cerebral cases and the paralyses of single nerves; while radiculitis, either from local œdema or inflammation at the exit of the nerve roots from their dural sheaths, appears to be the most feasible explanation for the amyotrophic and polyneuritic cases. The appearance of the symptoms and physical signs from two to five days after the onset of serum-sickness, when both the urticaria and the meningeal reaction are most pronounced, suggests very strongly that either a local œdema or the meningeal reaction is the source of the local condition. There is a suggestion, too, that these clinical features may appear independently of external manifestations of serum-sickness.

PROGNOSIS.

Generally the prognosis for recovery appears to be good. The more acute manifestations usually disappear within one month. Where muscular paralyses are a prominent feature, they tend to recover, but in many cases very slowly, a return to normal function occurring only 12 months after the *onset* of the condition. In some cases, even after 18 months, while some recovery has occurred, local wasting and impaired motor power are still present.

SUMMARY AND CONCLUSIONS.

1. The neurological complications of serum treatment may be classified in four groups: (*a*) a radicular type, resembling an Erb-Duchenne paralysis of acute onset; (*b*) a neuritic type, in which single nerve trunks are affected; (*c*) a polyneuritic type, in which the clinical picture resembles that of toxic polyneuritis; and (*d*) a cerebral type, in which symptoms and physical signs probably resulting from intracranial or cerebral œdema are the prominent features.

2. The pathogenesis of the neurological complications of serum treatment is discussed.

3. As a rule the prognosis of the neurological complications of serum treatment is good.

I am indebted to Dr. J. R. Prior for notes on the condition of the patient before the *onset* of the paralysis.

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CLINICAL AND LABORATORY NOTES

DIPHTHERITIC HEMIPLEGIA.

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THE first recorded case of hemiplegia following diphtheria is contained in Gull's report on "Diphtheria in the Metropolis," which is included in the Second Report of the Medical Officer of the Privy Council, 1859. It occurred at a school in South Hackney during an epidemic in which most of the children suffered from diphtheria. After a brief description of the case, in which the whole of the right side of the body was affected, the report continues:—

> "I was led to suppose that some endocardial inflammation was set up, and that probably obstruction from local coagulation of blood in the cerebral vessels was the cause of hemiplegia. By the freest use of wine and ammonia the child rallied, but the hemiplegia remained for many months, after which there was slow improvement."

PREVIOUS RECORDS.

Since the condition has been recognised as a possible complication of diphtheria a considerable volume of papers on the subject has accumulated. In 1913 Rolleston [1] described six cases which had come under his own observation, and in the same communication gave an exhaustive survey of others. At that time only 80 cases, but in 1929 he stated [2] he had collected that "barely a hundred cases have been recorded." A detailed account of a single case was also given by Rolleston [3] in 1905, and includes notes on the pathology of the condition and associated complications. In a further article [4] this observer emphasised the rarity of complete recovery of the affected limbs after diphtheritic hemiplegia, and quoted Levi,[5] who had found only four cases in which recovery was complete. It has been pointed out by Harding [6] that the condition resembles hemiplegia from other causes, and the fact that it is the only nervous complication in diphtheria which is of vascular origin has been shown by Baginsky.[7] According to Rolleston,[2,3] the lesion may be due to embolism, thrombosis, or hæmorrhagic encephalitis, and of these embolism occurs most frequently. Embolism is usually associated with severe involvement of the heart in which the endocardium, usually apical (Marfan[8]), may also be affected. A case in which hemiplegia, probably embolic in type, occurred in the course of diphtheria, and was accompanied by endocarditis resulting in valvular incompetence, has been described by Chamberlain and Alstead.[9] The relationship between diphtheritic hemiplegia and cardiac thrombosis is suggested by the case described by Ollive and Collet.[10] As examples of the usually very severe course of the disease in which hemiplegia develops, reference may also be made to two cases described in detail by Burrows,[11] an account of one case by Smith,[12] and an example of diphtheritic hemiplegia resulting in permanent paralysis and athetotic movements, which has been published by Ironside.[13]

ACCOUNT OF A CASE.

The following description of a patient who has come under our observation recently appears to be of interest as a case in which thrombosis was the probable cause of hemiplegia associated with aphasia.

The patient was a boy of 3½ years. There was no history of previous illness except pleurisy, but it was stated that he had been under observation for suspected tuberculosis of the lungs.

On admission to hospital he was found to be suffering from a fairly severe attack of diphtheria, both tonsils were enlarged and almost covered with membrane. The general condition was only fair; the temperature was 101·4° F., the pulse-rate was 140 per minute, and there was evidence of a moderate degree of toxæmia. Routine examination did not reveal any abnormality excepting the condition of the chest, the right side of which was flattened and generally underdeveloped, moved badly on respiration, and was dull on percussion in comparison with the left side of the chest. The breath sounds were short, vesicular in type but relatively rather harsh, and accompanied by an occasional crepitation. Over the whole of the right side of the chest the vocal resonance was increased. This condition was attributed to simple pleurisy previously mentioned, and a diagnosis of thickened pleura was confirmed on X ray examination. Except for tachycardia the heart was apparently unaffected when examined soon after admission; the apex-beat was in the fourth intercostal space and within the left nipple line, and the heart sounds were well defined and of good volume. The knee-jerks were present and equal.

Although 40,000 units of antidiphtheritic serum were injected intramuscularly immediately, the membrane extended, and fœtor, nasal discharge, and cervical adenitis became more marked. An intravenous injection of 32,000 units of serum was therefore given, and 10 c.cm. of anti-scarlatina serum were injected intramuscularly as the condition of the mouth suggested an added streptococcal infection. A transient albuminuria followed the injection of serum.

During the week following admission the membrane cleared but the general state of the patient deteriorated as shown by increasing pallor and a cyanotic tinge of the face and lips. The apex-beat of the heart remained inside the nipple line but the cardiac impulse was weak and diffuse. The heart-rate diminished considerably, and the heart sounds assumed an abnormal quality with triple and tic-tac rhythms. At this stage there were signs of "congestive" heart failure, including enlargement of the liver and vomiting. For 24 hours there was suppression of urine.

From the commencement of the second week in hospital there was a gradual improvement; the quality of the heart sounds was better, vomiting ceased, abdominal tenderness diminished, and the general condition became more satisfactory. Within a few days of this improvement, however, it was noticed that the patient was not using his right arm. On investigation it was found that there was a flaccid paralysis of the limb. In the course of the succeeding week a complete right-sided hemiplegia developed, characterised by a spastic paralysis of the right arm and leg, and paralysis of the lower part of the face on the right side. Simultaneously there was palatal paralysis and occasional periods of cyanosis suggesting diaphragmatic involvement. The condition of the heart also deteriorated considerably.

When hemiplegia was fully established, systematic examination of the central nervous system revealed increased tendon reflexes in the right arm but not in the right leg. The plantar response on the left side was flexor but on the right side extensor. The abdominal reflexes were asymmetrical, being absent or very sluggish on the right. Motor power in the right arm was considerably diminished, and to a lesser degree in the right leg. The pupils were equal and circular, reacted normally to light and accommodation, and the fundi were normal in appearance. Sphincter control was lost. No sensory disturbance was detected throughout the disease. At the time of onset of the hemiplegia the patient developed motor aphasia, but speech gradually returned though articulation remained indistinct. He had much difficulty in supporting his body-weight on the affected leg, and when walking dragged the right leg very noticeably.

As yet, it is too early to estimate the permanent defects, but at the time of writing there is evidence of pes cavus on the right side, the heart appears to have recovered completely, and the child's intelligence is unchanged though he seems to have become unduly emotional.

We are indebted to Dr. E. H. R. Harries, the medical superintendent, for permission to publish this case.

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A CASE OF ENTERIC FEVER

WITH SO-CALLED NEGATIVE WIDAL REACTION.

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THE recent advance in the laboratory diagnosis of enteric fevers by means of the so-called qualitative serum diagnosis has been commented upon in THE LANCET.[1] The notes of the following case are published in order to demonstrate that a persistently negative Widal reaction may be obtained by the customary technique, while the new method gives a positive result.

A schoolboy, aged 15 years, left Exeter on July 25th for a camp. Two days later he complained of headache, and on July 31st he was admitted to a hospital near the camp, where his temperature was found to be 103° F. He was brought to his home at Exeter and admitted to hospital on August 8th. His abdomen was somewhat distended and he had a scanty distribution of spots on the abdomen and back, very suggestive of enteric fever. There was considerable cough and many râles at both bases; the spleen was not enlarged. Two days later there was a further crop of spots. On August 14th, 18 days after the first symptom, the temperature began to drop; it became normal on the twenty-third day of the disease, and convalescence was uninterrupted. Clinically, a rather severe case of enteric fever.

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[1] THE LANCET, 1930, i., 248.

The first sample of the patient's serum, taken on the thirteenth day of illness, was only tested with Dreyer's formolised suspensions, and was negative for T.A. and B. Two further samples of serum were then tested against formolised and alcoholic suspensions and against live saline suspensions of the six strains recommended by A. Felix.*

		Titre of agglutination.	
		On 18th day of illness.	On 44th day of illness.
B. typhosus	formolised	0	0
B. paratyphosus A		0	0
B. paratyphosus B		0	0
B. typhosus "0901."	alcoholic	100	100
B. typhosus "0901"	live saline suspension	200	100
B. typhosus "H901"		100	200
B. paratyphosus "HA1."		200	200
B. paratyphosus "HA6"		0	0
B. aertrycke "OB"		100	0
B. paratyphosus "HB."		100	0

Titre 0 = a negative result in dilution 1 : 100.

All these agglutinations were of the "O" type, and indicated that the negative results with formolised suspensions were due to the absence of "H" agglutinins. The serological diagnosis was therefore: "Enteric group infection."

Blood culture was not attempted owing to the boy being very weak and thin, and the fæces and urine were negative on the twenty-fifth, forty-sixth, and forty-eighth day of illness. The serological diagnosis "enteric group infection" remained therefore the only laboratory aid available. A small outbreak of enteric fever, probably water-borne, occurred at the time, all the other cases being due to *B. typhosus*.

A FATAL CASE OF QUININE POISONING.

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Although quinine in some form or other has been used increasingly as a specific for malaria for the last 300 years,[1] cases of poisoning by its administration, by accident or design, appear to be fortunately rare. Taylor's "Principles and Practice of Medical Jurisprudence"[2] and Glaister's "Medical Jurisprudence and Toxicology,"[3] for example, contain no reference to any such case. It seems that while the fact of idiosyncrasy to quinine has long been recognised, its effects as a general protoplasmic poison have not always been appreciated, as witness the massive doses of quinine administered during the late war.

Raven[4] records a fatal case in England after the ingestion of 48 five-grain tablets—i.e., 240 grains—of quinine bisulphate.

In the German literature a number of cases of quinine poisoning are quoted by Starkenstein.[5] In a convalescent case of typhus a dose of only 2 grammes was stated to have been fatal (Husemann).[5] Starkenstein considered the average fatal dose of quinine to be from 10 to 12 g., but cases were known in which 12, 15, and 20 gramme doses proved non-fatal. On the other hand, Strzyzowski[5] described a case of suicide where death was caused by a dose of 15 g. of quinine sulphate. Amongst children's cases, Mezger and Jesser[5] have recorded the deaths of two infants of about 1 year old after swallowing 1·8 g. of sugar-coated quinine hydrochloride tablets. Cases are also on record in which two children, aged 2 and 3, died after taking doses of 1·2 g. and 2·0–3·0 g. respectively. Instances are known where doses, which in themselves were small, after being taken for a few days in succession, produced toxic effects.

Case-history.—Two sisters, aged 5 and 2½ years, were playing in their house at Amiandos, Cyprus, on March 15th, 1931, when they chanced upon a bottle of tablets consisting of sugar-coated quinine sulphate. Finding that the tablets were sugar-coated the children apparently consumed them as sweets. Investigation later showed that the younger child ingested 26 five-grain tablets, or a total of grs. 130, while the elder child ingested only five, or a total of grs. 25. Within an hour of taking the tablets both girls suffered from severe pains in the stomach, complained of nausea, and refused all food. The elder child, after administration of an emetic, made a permanent recovery in about four hours.

The younger child, however, began vomiting with purging and later had convulsions. From the vomit the mother noticed small white fragments of the ingested tablets. The child was given a dose of castor oil and put to bed and later removed to hospital. The medical officer found the patient in a state of asphyxia from which she died in half an hour, death having taken place about three and a half hours after swallowing the tablets. The whole of the skin appeared cyanotic as well as the mucous membrane, the pupils were dilated, the pulse and respiration were almost imperceptible, and the body temperature very low. Froth was proceeding from the mouth and nostrils. The stomach was washed out and artificial respiration tried for 1 hour and 40 minutes without avail.

Post-mortem examination was carried out next morning and the report described a marked lividity about the lips and ears with eyes prominent and tongue protruding. All the viscera, especially the lungs and kidneys, were found to be very congested and the blood was almost black in colour. The heart, suprarenals, and kidneys showed numerous black spots due to hæmorrhage, as also did the stomach and the large and small intestines. The bladder was devoid of urine and fæces were not found. No signs of organic disease were observed and the body was that of a healthy well-developed female child.

Toxicological analysis was then carried out on the following organs: heart, lungs, stomach and contents, liver, spleen, pancreas, kidneys, and blood; and also on the tablets and fragments remaining. Each organ was separately investigated by a modified Stas-Otto method, the material in each case being well minced before the digestion with alcohol. The final residues thus obtained were tested for the presence of quinine by the blue fluorescence in oxy-acids such as dilute sulphuric acid, the intense bitterness of its solutions, the thalleioquin reaction, the lævo-rotation of the solutions, and the solubilities in ether and alcohol. Clear positive reactions were obtained in the case of the stomach and contents, while in the liver traces only were detected. In the remaining organs of the viscera no quinine was found.

It is perhaps somewhat surprising that in view of the large amount ingested no quinine could be detected in these organs. Apart from the amount lost by vomiting, at least one-third of the quinine ingested is quickly excreted in the urine unchanged. Of the remainder it seems probable that the most part is destroyed by the tissues, a fact which explains the difficulty experienced in the detection of quinine in viscera. The tablets on analysis were found to be five-grain pills of sugar-coated quinine sulphate.

I wish to thank Dr. H. Christodoulides for the details of the autopsy, and Dr. G. C. Strathairn, Director of Health, Cyprus, for permission to publish the results of this investigation.

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Orthopædic Treatment at Leicester.—The Leicester city council has approved a scheme for the provision of orthopædic treatment at the City General Hospital at a cost of £9840. For financial reasons, however, the execution of the plan has been postponed for six months.

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* Ibid., p. 505.

MEDICAL SOCIETIES

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.

At a meeting of this Association, held on Oct. 29th, Dr. Letitia Fairfield, the President, being in the chair, Sir Bernard Spilsbury read a paper on

Criminal Abortion.

The terms abortion and miscarriage referred, he said, to loss of the fœtus before the sixth month; the term premature labour was used when the loss occurred after the sixth month. The act was only criminal when proof of intention was forthcoming; for example, when a medical man passed an instrument into the uterus of a woman whom he knew or suspected to be pregnant, he clearly showed his intention to procure miscarriage. He would be held guilty unless he could show some good and sufficient reason why pregnancy should be terminated prematurely in her case. The act which procured abortion might be capable of an innocent explanation—e.g., following injection of fluid into the vagina, in the course of treatment for gonorrhœa. Only the absence of any disease which would justify such treatment would lead to suspicion of the practitioner's motives. Criminal abortion might be: (1) Self-induced—most often by general violence and drugs, but occasionally by local violence. (2) Induced by another—most often by drugs and local violence, seldom by general violence.

General violence was commonly the first attempt at self-induction. Methods used were excessive exercise, tight lacing, lifting heavy articles, very hot baths, jumping or falling from a height. Occasionally these methods were effective, notably in women who aborted easily, but they might result in death, or endanger life through injury.

Local violence could be defined as any mechanical means employed upon the uterus or adjacent structures which will either stimulate the contraction of the muscle of the uterus directly, or by damaging the ovum, or detaching it from the uterus, will indirectly bring about the same result. The means include the passage, or attempted passage of an instrument. The instrument used by a woman on herself might be a skewer, hatpin, knitting needle, hairpin, or crochet hook; abortionists used catheters, sounds, bougies, curettes, tents, or other dilators. The use of such instruments by an unskilled person required some anatomical knowledge; malposition of the uterus might foil such attempts. When instruments were used by a skilled person in many cases no injury was caused, though undue haste, or the intemperate habits common in professional abortionists sometimes caused them to make mistakes. Possible dangers were sudden stretching of the cervix, causing a tear, sudden overcoming of the resistance at the internal os leading to penetration of uterine wall or injury to placenta; malposition of uterus; abnormally placed placenta. Non-instrumental methods included injections into the vagina, which might be self-administered, or intra-uterine injections, which were nearly always administered by skilled abortionists. These included watery fluids which might contain antiseptics, or a soap solution. Other methods were: blowing air into the uterus; manipulation of the external os; packing the vagina; massage of the uterus through the abdominal wall; passage of electric current through the uterus; dilatation of the cervix and removal of the contents of the uterus with a curette.

The dangers of local violence were septic infection, hæmorrhage (which might be internal if perforation had occurred), and shock. Infection in the early stage was limited to the uterus and adnexæ; the bold surgical policy of removing the uterus completely was more likely to save life than more conservative methods. The risk of shock could not be anticipated; death from shock sometimes occurred in the most unexpected cases at the moment when an instrument was passed into the uterus. Fatal shock might follow the sudden distension of the uterus by injection of fluids, or the sudden stretching of the cervical canal.

In discussing abortion induced by drugs, Sir Bernard quoted a statement by the late Dr. F. J. Smith, that there is no drug or combination of drugs which will, when taken by the mouth, cause a healthy uterus to empty itself, unless it be given in doses sufficiently large seriously to endanger by poisoning the life of the woman. It was in women with whom miscarriage normally occurs with little provocation that abortion is procured easily with drugs.

DIAGNOSIS OF ATTEMPTED ABORTION.

It was often difficult, said Sir Bernard, for a practitioner called to a case of abortion to know whether or not the abortion had been induced, unless the circumstances excited suspicion. Sometimes a patient invented an accident such as a severe fall, or a blow upon the abdomen as explanation of a miscarriage, thus the association as cause and effect between an accident and miscarriage might be less frequent than was usually supposed. The patient rarely took the doctor into her confidence; faced only with symptoms of a secondary infection he might never suspect that he was dealing with a septic abortion, especially if called in only some time after the abortion had taken place. It was therefore a reasonable assumption that criminal abortion was more frequent than was generally suspected, and the evidence obtained in many criminal cases of the long career of the abortionist, and the large number of cases that had been treated by him before he was detected, supported that view. A useful pointer to diagnosis was the relation in time of a febrile infection traceable to an infection of the genital tract to the miscarriage. If an interval of time occurred after the miscarriage before the *symptoms* and signs of infection *appeared*, the infection was likely to have occurred as a complication of the miscarriage. If the infection occurred either before, during, or immediately after a miscarriage, there was some ground for suspecting that it had been procured by some means of local interference.

DISCUSSION.

Mrs. Ivens Knowles from her own experience confirmed the good results of complete removal of the uterus in septic cases.

The President commented on the deduction to be drawn from the risks that Sir Bernard had described—namely, that some degree of sepsis followed many cases of abortion which were never discovered because the woman survived, and that much disability and ill-health in after-life might be attributable to this cause.

Sir Bernard agreed, and said that the greatest factors in producing sepsis were the haste and secrecy in which criminal abortion had to be performed.

MEDICAL SOCIETY OF INDIVIDUAL PSYCHOLOGY.

At a meeting of this society held on Nov. 12th, at 11, Chandos-street, London, with the President, Dr. W. LANGDON BROWN, in the chair, Dr. S. VERE PEARSON read a paper entitled

The Individual Psychology of Phthisis.

His experience as a sanatorium superintendent had, he said, taught him that psychological factors played an important part in the causation and treatment of phthisis. Clinical knowledge gained in this way had also led him to prefer Adler's psychology to those of other schools. Thus among other points he agreed with his "common-sense" teaching, and with his opinion that physical and psychical treatment should be undertaken concurrently. He was inclined to attribute the scant notice taken of the mental factor to the fact that the superintendent was so often appalled by the way in which the physical presence of phthisis was overlooked, even when it was glaringly apparent, that he was apt to focus his attention upon the physical condition. Nevertheless no superintendent of experience could deny that in general no recovery could be obtained, even in slight cases, unless the mental factors were also taken into account.

The psychological aspect was important alike from the point of view of diagnosis, treatment, and prognosis. Difficulty in diagnosis arose from the fact that a great number of healthy people showed evidence of old healed tuberculosis—for instance, on X ray examination. If such a subject developed an anxiety neurosis, this might lead to the production of anorexia, pain or other symptoms also associated with active tuberculosis. He mentioned cases of this kind which had come under his care at Mundesley Sanatorium. Only careful and experienced observation, and the subsequent history had made it certain that the classical signs of tuberculosis which these patients had presented on admission were in reality neurotic manifestations. Observations of this kind suggested the practical advisability of reviewing doubtful cases of phthisis from the Adlerian standpoint. He gave instances where this method of procedure had led to correct diagnosis of the causal factors, and consequently to successful treatment.

For several reasons, said Dr. Pearson, he preferred sanatorium to home treatment. Thus he agreed with Groddeck that the vis medicatrix naturæ tended to be dominant, and that therefore health might often be re-established without further aid than that associated with good environment. Since however phthisis was often a sign of discouragement, in other words a running away from the stress of life, psychotherapy combined with physical treatment often led to quicker as well as to more lasting results. Thus by this means it was often possible to allay some anxiety, or to expose some underlying lack of will to health. Complete cure involved a restoration of sufficient courage to enable the individual to return to some useful work, preferably to that to which he had been trained. Prognosis was intimately bound up with correct diagnosis and treatment. The early diagnosis of phthisis was certainly important; but perhaps of even more value than the discovery of early lung disease was the detection in an early and easily recoverable stage of some mental condition which predisposed, if it had not yet actually led, to the development of phthisis. Confidence and the will to health were necessary to the recovery and maintenance of health alike. Mental as well as physical rehabilitation was therefore an essential part of sound treatment.

DISCUSSION.

The PRESIDENT agreed with Dr. Pearson that the phthisical patient needed careful psychological treatment to enable him to meet successfully the difficulties of a long and trying illness. He had been especially interested in the cases mentioned by Dr. Pearson which had simulated phthisis. He asked his opinion as to the correct interpretation of spes phthisica; he thought himself that it was a defence reaction against fear.

Dr. F. G. CROOKSHANK referred to observations he had made, in a paper published some years ago, upon the abnormally slow breathing of depressed patients. The consequent slow interchange of air, as compared with that of the normal person, gave the tubercle bacillus a greater opportunity to settle in the lungs. The prevalence of phthisis in asylums was probably connected with this fact. He certainly thought that the discouraged patient was especially liable to develop tuberculosis. He considered it likely, however, that the "decline" of the mid-Victorian woman was probably not due to tuberculosis, but was a symptom of discouragement. Removal of repression resulted in a return to health. He suggested that the favourable results which followed a stay at Davos or Mundesley were in part due to the fact that the patient left home. Spes phthisica he regarded as a sham, the feeling of one who whistled when going through a dark wood to keep up his spirits.

Dr. E. H. GRIFFIN spoke of having a fear after being gassed in the war that he had tuberculosis. Owing to a mistake with the cover-slides he was pronounced to have the disease, and that evening he went home and had an attack of hæmoptysis. Later the mistake was discovered, and he spat no more blood. That was an illustration of the influence of the mental factor.

Dr. T. ROGERS doubted whether it was always advisable for patients to return to their old occupation, for instance, when they disliked it. Such incompatibility might have been a factor in discouragement.

Dr. A. K. KERR doubted whether spes phthisica was a protective mechanism. He said he knew of cases of phthisis in which the factor of discouragement could not be discovered.

Dr. PEARSON said he thought the prevalence of spes phthisica was exaggerated. He thought it was a defence mechanism. Increased experience had strengthened his opinion of the importance of discouragement as an ætiological factor in phthisis. He agreed that wrong occupation was certainly a factor in discouragement.

PEDAL CYCLE ACCIDENTS.—It is officially stated that over 40 per cent. of the traffic accident cases admitted to the Royal Hospital, Sheffield, are caused by pedal cyclists, 28 per cent. by motor-cycles, and 25 per cent. by motor-cars, the remainder being attributable to other vehicles.

A HOSPITAL POULTRY FARM.—The committee of the Leicester City Mental Hospital has decided to adopt poultry farming on an extensive scale. There are nearly 1000 patients in the hospital and large quantities of eggs and poultry have to be purchased; it is believed that home production will ensure substantial economies.

REVIEWS AND NOTICES OF BOOKS

Artificial Cranial Deformation.

By Eric John Dingwall, M.A., Ph.D. London: John Bale, Sons and Danielsson, Ltd. 1931. Pp. xvi. + 313. £3 10s.

Dr. Dingwall has brought together in this well-illustrated volume the materials for the consideration of one of the strangest customs ever invented by man and one of the most curious forms of ethnic mutilation. The custom of artificially deforming the skull in children so as to produce an abnormal and grotesque contour is one of great antiquity and of very wide geographical distribution. The literature of the subject is enormous; some idea of its extent can be formed from the list of works consulted, which fills nearly 50 pages. Many of these studies appeared in rare and inaccessible foreign publications; it is therefore most beneficial to the student to find their essence distilled into so convenient a compass as this book, and to find also so illuminating a discussion of them. The author is concerned only with artificial deformation; fœtal moulding does not come within his purview.

Many different methods of classifying artificially deformed skulls have been proposed. Most of these are cumbrous and complicated and involve the creation of many divisions and subdivisions. It scarcely ever happens that a given cranium will fit into any of these divisions, as one form merges into another and no clear dividing line can be established. Dr. Dingwall has wisely rejected such systems in favour of a far simpler method, and by his system, based upon the means employed, his classification is reduced to six heads. These are: (1) plastic moulding; (2) application of boards; (3) application of bandages; (4) application of pads; (5) application of stones; and (6) deformation produced by cradles. By an intensive study of the subject, the particular forms of cranial deformation produced by each of these methods is clearly recognisable. Dr. Dingwall observes (p. 15):

> "Compensation will almost invariably follow after pressure, and 'growth' will take place where pressure is least. Thus, for example, suppose we fasten boards to the frontal and occipital regions of an infant's head and secure the pieces of wood together by laces. The occipito-frontal diameter will be shortened and the head will grow upwards by way of compensation. Thus the calvarial height will be increased as well as the cervico-bregmatic diameter. The parietal regions will be splayed out and growth will thus take place vertically and laterally. A similar mode of reasoning will enable us to determine the general form resulting from each variety of apparatus, and it will become apparent that a classification based on form cannot be as satisfactory as one based upon the means employed for the production of that form."

Discussions of the origin, cultural significance, and distribution of the custom belong to the domain of the anthropologist; from the medical point of view one of the most interesting questions is the effect of this strange and grossly unnatural procedure upon the health of the victims. The striking fact emerges that, according to the available evidence, most of the infants subjected to the prolonged and cruel process of artificial cranial deformation seem to survive the ordeal and reach maturity. Nor does the custom apparently produce an unfavourable effect upon physical development. Innumerable ancient skeletons have been examined in which there is the most fantastic deformation of the skull, associated with vigorous and muscular limb-bones, nor does the observation of living cases in recent times tend to show that either the physical or the mental powers of the cranially deformed are seriously interfered with. In its racial aspect, the fact that the custom has survived from remote antiquity is alone sufficient to show that it does not necessarily produce evil effects.

Grosse Ärzte.

Eine Geschichte der Heilkunde in Lebensbildern. By Dr. Henry E. Sigerist. München: J. F. Lehmanns Verlag. 1932. Pp. 310. RM.10.

Dr. Sigerist, who is professor of the history of medicine in the University of Leipzig, has written the story of the healing art in the form of short biographical sketches (47 in all) beginning with Imhotep, and ending with Pettenkofer, no one being included whose lifework is not closed The English-speaking reader will naturally turn to the names of William Harvey, Thomas Sydenham, John Hunter, Edward Jenner, and Joseph Lister, to see what the author has made of them; and he will not be disappointed, for the sketches, though brief, are lively and well-balanced. Of the first-named, for instance, Sigerist writes: "Harvey is an anatomist. He writes an anatomical treatise. But under his hands anatomy takes a new form; it becomes an animated anatomy, that is to say, physiology. And physiology quite other than what there was before him." This book is dedicated "to the unknown doctor who in quiet selfless work puts into practice the teachings of the great doctors." There are 68 illustrations, 16 of them full-page portraits, and in an appendix is given a short but useful biography of many of those whose portraits are painted. The book is produced in the attractive style with which the publisher has made us familiar, and the title-page suggests a desire to be up to date.

An Introduction to Neurology.

Fifth edition. By C. Judson Herrick. London: W. B. Saunders, Co., Ltd. 1931. Pp. 417. 12s. 6d.

The latest edition of Prof. Judson Herrick's masterly Introduction needs no renewed commendation; by this time it is known to a large circle, and its qualities of accurate description and readable presentation justify the appreciation it has received. Several of the chapters have been rewritten, others recast, so that the reader is now offered an up-to-date account of the form and functions of the nervous system which could not be bettered. Prof. Herrick shows himself abreast of the advances of the day, incorporating what from the standpoint of his book is most utilitarian, and most likely to prove of abiding significance. In the literal sense the book forms merely an introduction, yet within its pages is to be found much that can be studied with benefit by advanced workers in the field. No attempt is made to make the subject too easy; no difficulties are slurred over, no conflict of opinion is ignored. The desirability of modifying traditional knowledge or of discarding interpretations no longer acceptable is emphasised throughout. In other words, the reader gains the impression that the author is dealing with dynamic as opposed to static conceptions, that neural problems are of a living, vital kind; that the nervous system in health and disease is vastly more than a fabric of nerve-cells and fibres; yet the importance of anatomical knowledge is in no sense belittled. The ready way in which wider questions are foreshadowed and further horizons indicated by Prof. Herrick's judicious comments is stimulating.

The book is a fine production, and deserves increasing recognition.

Minor Surgery.

By LIONEL R. FIFIELD, F.R.C.S. Eng., late Surgical First Assistant and Registrar, London Hospital. Second edition revised by R. J. MCNEILL LOVE, M.S. Lond., F.R.C.S. Eng.. London: H. K. Lewis and Co., Ltd. 1931. Pp. 440. 12s. 6d.

THE tragic death of Mr. Fifield has left the task of preparing a second edition of this book in other hands; but he could not have hoped for a more sympathetic touch or a wiser outlook than that of his friend and colleague Mr. McNeill Love. This book has the great merit of achieving exactly the purpose with which it was written—namely, to describe minor surgery as practised and taught at the London Hospital. The book has the further advantage of being limited strictly to minor surgery. The views set out are clearly expressed and thoroughly sound. Mr. McNeill Love has carried out his work with the minimum disturbance of the original plan of the book, and the result is admirably suited to the needs of student and practitioner.

Biology and Mankind.

By S. A. MCDOWALL, B.D., Chaplain and Senior Science Master at Winchester College. London: Cambridge University Press. 1931. Pp. 229. 6s.

THE author's thesis is that "the greatest need of England and of England's politicians, is a knowledge of the biological factors upon which legislation may impinge." And he frankly confesses himself a propagandist. His book, which is meant for the lay public as well as for his pupils at Winchester, gives a readable account of evolution and a pretty full description of mendelian inheritance. The last three chapters survey the social and economic implications of the biological facts as the author sees them. The main contention is that we must eliminate the "unfit" by selective breeding and sterilisation. The book suffers from the strain of exaggeration which runs all through it; the author is for example "absolutely convinced" of a number of things about which most people feel at least a little doubtful and the interference of civilisation with natural selection is described as "by far the most momentous event in the whole secular history of the world." The facts seem more or less right, but there is a complete misstatement about antitoxin on p. 140 and some curious nonsense about alcohol on the succeeding pages.

An Outline of the Human Body.

By A. DAVID BELILIOS, M.B., B.S. Lond., D.P.H. Eng., Lecturer in Domestic Medical Science, Wimbledon Technical College. London: George Routledge and Sons, Ltd. 1931. Pp. 190. 3s. 6d.

THERE seems to be a growing desire on the part of the public for books written in simple language dealing with scientific subjects. A considerable degree of responsibility rests upon the authors of such manuals. When the reader wants to assimilate new knowledge he should not be offered a distortion of the truth. This book purports to tell the story of the human body, but contains *many errors, including* actual misstatements of *facts* as well *as careless* expressions. We read that involuntary muscles are concerned with the movements of the lungs in breathing, that ptyalin converts starch into malt sugar "which is ready to be absorbed by the blood," that peptones are easily absorbed by the walls of the stomach, and that the function of trypsin is to turn proteins into peptones. Fig. 15, which is an illustration of the knee-joint, is labelled "hip-joint"; and Fig. 57 refers in the legend to "O," whereas the corresponding point on the illustration appears as "N." The astonishing statement is made that the mucous membrane of the nose is composed of ciliated epithelium, the "cilia" constantly waving about like the fins of a fish to prevent stagnation of the air! Two appendices are supplied, one dealing with the dissection of the rabbit and frog, and the other contains a plan and a short guide to the museum of the Royal College of Surgeons of England.

Leeuwenhoek: Fourteen Unpublished Letters.

Opuscula selecta Neerlandicorum de arte medica ix. Published by the Nederlandsch Tijdschrift voor Geneeskunde. Pp. lxxv.+145.

ANY relic of the father of microscopy is of interest. We have here an English translation of some of his letters, in the possession of the Royal Society of London, which have never before been published. There are also 15 plates of portraits and facsimiles of the letters and drawings. For the success of the whole undertaking Mr. Clifford Dobell is evidently largely responsible. Leeuwenhoek at the time (1674–1678) was interested especially in discovering particles and globules in apparently homogeneous liquids; he also describes as clearly as usual his observations on hair and his deduction that they grow from the root and not from the tip. He is sorry when his friends in London write to him in English instead of French or Latin, for neither he nor anyone else in Delft can make out the meaning. The present translation seems satisfactory, though surely no spurge has ever been called "wild parsnip" in this country (p. 89).

The Management of Abdominal Operations.

By RODNEY H. MAINGOT, F.R.C.S. Eng., Surgeon, Royal Waterloo Hospital, London. London: H. K. Lewis and Co., Ltd. 1931. Pp. 311. 7s. 6d.

Diet and Care of the Surgical Case.

By REYNOLD H. BOYD, M.B., Ch.B. N.Z., F.R.C.S. Edin. With an introduction by C. C. CHOYCE, C.M.G., F.R.C.S., Director Surgical Unit, University College Hospital. London: H. K. Lewis and Co., Ltd. Pp. 106. 5s.

THE details of the management of patients after operation vary considerably in the practice of individual surgeons; every surgeon is, moreover, apt to confuse detail with principle and to believe that rigid attention to his own particular ritual is a necessary adjunct to recovery. This bias, if common with surgeons, is even more noticeable in house surgeons and ward sisters who may come to believe not only that their method of after-treatment is a good one, but that it is the only good one. In this book dogmatism is not absent, but the principles and methods advocated are sound and would meet with the approval of almost all surgeons; with the exception possibly of the author's views on the time for leaving albuminous complex to which the patient is sensitive, together with a protective substance elaborated against it. The hay-fever patient excretes a proteose which can be used in the diagnosis or treatment of another hay-fever patient, but the proteose excreted by an asthmatic does not usually provoke a reaction in another asthmatic, except in cases of specific sensitisation ; for instance, one case of horse asthma will react to the proteose of another case of horse asthma. Proteose also appears in increased amounts in the urine in eczema and certain forms of rheumatism, and these interesting experiments may perhaps have a wider application than was at first expected. Treatment by desensitisation—small doses of proteose—is still empirical, but has given very good results in some cases though not in others. The other main line of research in this clinic is the investigation of the sputum. Many asthmatic sputa, it is stated, contain a histamine-forming organism, but although histamine powerfully contracts the bronchial tubes, it seems doubtful whether these bacteria can actually induce asthma. Therapeutically, happy results are sometimes obtained with vaccines. Many other observations have been made in addition to these two principal objects of research, and many treatments have been tested. Individuals, as is well known, occasionally derive benefit from unusual remedies, which have no success when applied to a group.

At the Children's Clinic at Great Ormond-street over 1000 children have already been studied. In two out of every three cases an inquiry into the history showed that some relative was also affected, and the relative was twice as often found on the mother's side as on the father's. Three times as many boys as girls were affected before the age of puberty, after which the sexes were equally susceptible. These findings suggest that the asthmatic tendency is definitely transmissible, and that the changes of puberty are beneficial to the asthmatic boy and deleterious to the asthmatic girl. Where a hereditary influence could not be traced there was nearly always some severe pulmonary illness at the onset of the trouble, suggesting that inhaled particles may bring about a supersensitive state through damage of the lung. Homes were investigated, and the greatest number of sufferers was found among pampered only-children of skilled artisans and educated people. The commonest causes in the home appeared to be feather or horsehair beds, animal pets, and dust. Food played a minor part, but when it was the cause the condition was usually associated with deficient acidity and consequent inability to digest proteins, together with deficiency of the liver's power of dealing with sugar. The results of treatment have been good. In the food cases the asthma can be prevented by supplying hydrochloric acid, and great success has attended desensitisation in animal asthma and animal hay-fever. At Guy's glucose and general hygiene are the principal methods used, and open-air treatment for many months in a convalescent home is advised where the simpler methods fail. Once the habit of attacks is broken they commonly do not return.

At King's College an investigation is being made into the constituents of the blood likely to produce asthma, particularly the calcium-potassium-carbon-dioxide balance. It seems that a disturbance of this balance partly explains both locality and food asthmas, and the results when applied to patients are encouraging. The suggestion that asthma is related to an alkaline state of the body is held to be confirmed by another investigation into the effects of carbon dioxide on the bronchi. The calcium environment of the bronchi has also been shown to affect profoundly their reactions to foreign substances, and it has been found possible to desensitise them without making them contract. A method has also been elaborated for assessing the nervous factor in asthma.

CONCENTRATION OF HÆMOGLOBIN IN NORMAL HUMAN BLOOD.

It is 30 years since HALDANE and LORRAIN SMITH showed that the oxygen-carrying power of blood varied in direct proportion to its colour and could be accurately determined colorimetrically by comparison with blood of known oxygen capacity. This was the basis of HALDANE's modification of the Gowers hæmoglobinometer in which he replaced the uncertain and unstable standard of picro-carmine gelatin by a 1 per cent. solution of blood of known oxygen capacity saturated with carbon monoxide. Properly made and sealed, these standards are permanent, are valid in any light since the standard and the unknown are the same pigment, and can always be referred to an absolute and verifiable standard by comparing them with blood of which the oxygen capacity has been determined directly by the ferricyanide method. The instrument in short is one of high precision and very convenient, and it has for long been used by all serious observers in this country. In recent times, however, a rather general suspicion has grown up that the average normal level determined by HALDANE and LORRAIN SMITH is now too low. From the examination of 24 healthy men, they obtained an average oxygen capacity of 18·5 c.cm. oxygen per 100 c.cm. of blood and marked this as 100 on the hæmoglobinometer scale ; from 18 women they got a mean of 91 per cent. on the scale. In actual practice however it has turned out that most readings for normal males are 100 or more, and in the United States several sets of normal values have given means of more than 110. The difficulty evidently wanted clearing up and this Dr. PRICE-JONES at University College Hospital Medical School has recently set out to do.[1] In 100 healthy young men he found a mean value of 105 per cent. on the Haldane scale, with a range of 96 to 116 ; in 100 healthy young women 98 per cent., with a range from 90 to 110. The normal 100 per cent. of the instrument is evidently too low now, though whether a larger series than they examined would have given HALDANE and LORRAIN SMITH the same figure in 1900 cannot unfortunately now be found out; it is quite possible that the normal level has risen, possibly because more adequate hearts enable a more viscous blood to be circulated conveniently. This new figure was, however, still discrepant with the normals in America. Over there the Haldane hæmoglobinometer is almost never used; either the oxygen capacity of blood is determined directly from a vein sample or the colour is matched against some standard which is calibrated by oxygen capacity determinations. As it happens, these are done there by the van Slyke method, while in England Haldane's ferricyanide method has always been used in making standard solutions for the hæmoglobinometers. Curiously enough no serious comparison of the two methods of determining oxygen capacity has ever been made, and it seemed possible that here lay the explanation of the difference between the normal levels of hæmoglobin in the two countries. So Dr. PRICE-JONES went to Boston where in a series of 20 healthy young men he determined the oxygen capacity colorimetrically with the same hæmoglobinometer he had used in London, while Prof. D. B. DILL and Dr. G. P. WRIGHT determined it by the van Slyke and Haldane methods in the technique of which they are respectively experts. The several means came out as 112, 112, and 109 per cent. on the Haldane scale, the van Slyke method consistently giving slightly higher results than the Haldane, though the difference is not nearly enough to account for a mean of 112 in Boston against 105 in London. Dr. PRICE-JONES is inclined to attribute the relative polycythæmia in America to the habitual and persistent use of saloon motor-cars and the consequent slight chronic carbon monoxide poisoning. That polycythæmia can be and is actually produced in this way has been fully established, and it is certainly curious that American figures for normal women are not higher than those found in London. In Buenos Aires too ORIAS found a mean of 103 per cent. for soldiers, 111 for students, and 97 for women, and the general demand for "sunshine roofs" may be an empirical herd response to the avidity of hæmoglobin for carbon monoxide. Finally, we should like to express the hope that no attempt will be made in the light of these results to alter the standard at which the Haldane instrument has always been set. The important thing is to determine with it the oxygen-carrying power of the blood, and it is no matter if the normal level is 105 on the scale instead of 100. Any change would make for nothing but confusion.

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[1] Jour. Path. and Bact., 1931, xxxiv., 779.

ANNOTATIONS

ANÆSTHETISTS TO SURGICAL UNITS.

THE professorial system, with its "units," has been in force enough years now at several teaching hospitals in London for sound opinion to be formed of its merits or demerits in comparison with the older arrangement alongside of which it is at work. That the newer method is not a complete success in London medical schools is evident, for some hospitals in which it was adopted have after trial gone back to their former arrangements and in others the unit staffs do not receive the wholehearted sympathy of their colleagues. Nevertheless, there are certain advantages accruing both to and from the physician or surgeon whose time is wholly given up to hospital practice, and these advantages have been fully utilised, we believe, by those holding leading positions in the units. The benefits should be, and we believe are, manifest in research, in teaching, and in the additional time available for devotion to he patients' welfare. There are directions in which he unit system appears to be incongruous with the other method of employing the staffs of voluntary hospitals, and there is certainly one class of worker o whom the system is definitely unjust. We allude o visiting anæsthetists who are required to work for he surgeons of units, and their unfortunate position s described in the letter from Dr. Howard Jones which appears on p. 1156. The honorary anæsthetists t the London hospitals receive of course but slender, f any, direct remuneration in return for their services t the institutions to which they are attached. It s presumably supposed that just as the physician r the surgeon is unpaid and takes his chance of arning a decent income through the reputation nd the practice which may fall to him owing to his ospital appointment, so the anæsthetist is in an xactly similar position. This is however not the truth. The position is not exactly the same for the anæsthetist as it is for the physician and the surgeon. This arises from an essential difference in the relationship between the patient and the surgeon on the one hand, and the patient and the anæsthetist on the other. Anæsthetics are inevitably a secondary not a primary need. The surgical patient requires primarily an operation, we may suppose, and for that operation an anæsthetist is generally, though not always, necessary. But it never happens that the anæsthetist is the patient's primary need. He is wanted only through the surgeon. Consequently the hospital anæsthetist depends for his livelihood mainly on the surgeons with whom he works in hospital, and it is on the chance, the probability, of earning fees through them if his work is satisfactory that he is willing and able to put in many hours of unpaid work at hospitals. When these hours are spent with the surgeon of a unit, who does no operating outside the hospital, the anæsthetist is not only doing unpaid work, but is doing it generally just at a time when he might be earning a fee in private practice. He gets no reward except that bestowed on him by the consciousness of meritorious charitable labour. This fruit of toil however is apt to lose its savour, for the anæsthetist feeds on it in abundance. His work is, as Mr. Morley Roberts observed somewhere, "an honourable but not a fertile occupation." It seems to us plain that where surgical units at teaching hospitals are concerned the anæsthetists' lot should be made, not less honourable, but, at any rate, more fertile. He is surely an essential part of a properly constructed surgical unit. The leader of that unit is paid, his assistants are paid, and so should the anæsthetist be paid. Under existing conditions it must happen that the anæsthetist's sense of duty sometimes gives way before necessity and he delegates his duties to a junior, to the resident anæsthetist, or of thymol in commercial alcohol proved a reliable antimycotic agent, and it is interesting to note that an increase in the concentration of the drug did not have any marked influence in reducing the times—minutes for the mycelial group, and hours for the yeasts—in which the results were achieved. Kadisch states that *silk stockings, for instance, can be disinfected* of all mycotic organisms, both fungi and yeasts, by six hours' immersion in this fluid.

GYNÆCOLOGY IN VIENNA.

THE large volume before us[1] describes the technique of operative gynæcology employed at the First University Women's Clinic, Vienna, and the results obtained there. The opening section is devoted to a description of the precautions against infection, anæsthesia (including a very detailed description of local and sacral anæsthesia), post-operative complications, general operative technique, and preparatory and after-treatment. The second section is given to anatomy, and the third and last section to descriptions of the various gynæcological operations, starting with cancer of the cervix, to which 160 pages are devoted, mostly occupied by a detailed description, with plates, of the extended vaginal operation which is chiefly used by the authors, though a very full and beautifully illustrated description of radical abdominal hysterectomy is also given. The numbers of cases dealt with are impressive. Thus between the years 1901 and 1920 were seen 1787 cases of cancer of the cervix, and from 1921 to 1925 a further 461 cases, of which 258 were operable—an operability-rate of 56 per cent., the primary mortality-rate being 6·6 per cent. In most cases the extended vaginal operation was done. From Jan. 1st, 1921, to May 31st, 1922, 161 cases were seen, and of these, 92 came to operation, 82 of which were done by the vaginal route, and 10 by the abdominal. In this group the primary mortality was 9·8 per cent., the five-year cure-rate being 26·7 per cent. of all cases seen (161). The results which are given in detail will repay careful study. Few cases seem to have been treated by radium, and the results obtained are, on the whole, poor, though of 249 inoperable cases treated by radium between 1913 and 1919, 26 (10·5 per cent.) were well in 1924. From 1921 to 1925 (five years), 921 myomas were seen in the clinic, 620 of which came to operation. In 349 vaginal hysterectomy was done with only one death, while supravaginal hysterectomy was carried out in 176 cases with six deaths, and total abdominal hysterectomy in 69 cases with six deaths; the total death-rate in the series being 1·6 per cent. Cancer of the cervical stumps the authors found to be rare, only eight cases in 1253 supravaginal hysterectomies. As the frequency of cancer of the cervix in the general population is 0·025 per cent., the conclusion is reached that subtotal hysterectomy predisposes to cancer in the stump. Since however the patients know that menstruation has finished, and therefore do not expect bleeding, they come early, and so most cases are operable. The absence of menstruation and accompanying hyperæmia tend to limit infiltration of the parametrium, so that of 13 cases in the authors' experience only two were inoperable. Of metropathia hæmorrhagica 580 cases were seen in the five years from 1921 to 1925; of these, 239 were treated by vaginal hysterectomy, of which four died, and 332 were treated with X rays—successfully in all but seven cases. In treatment of cancer of the body, operation by the vaginal route is again favoured. The results from radium have been poor; it was used in nine cases, of which seven were operable, *and only one of them was completely cured.* For retroversion the Baldy operation is preferred. Eighteen pages and 15 colour plates are occupied with interpositio uteri. A feature of the book is the beauty of the illustrations, all but two of which are original. The book, which is a notable addition to gynæcological literature, constitutes the last work from the pen of the late Prof. Peham, and really amounts to a record of his unique and lifelong experience.

SERUM IN ACUTE POLIOMYELITIS.

THE value of immune serum in the treatment of the acute stages of anterior poliomyelitis is now firmly established,[1] but it is difficult to get a ready and sufficient supply. In America some workers have adopted the practice of collecting and pooling small quantities from patients recovered from the disease. This, however, is not altogether devoid of fallacies, as Shaughnessy, Harmon, and Gordon[2] have shown, since they found that of seven persons who had been attacked by poliomyelitis from 6 to 24 months previously in only four was the serum potent to neutralise the virus. But in addition these workers confirmed the previously recognised fact that the serum of many people who have never suffered from the disease contains immune bodies in high concentration. For these reasons H. K. Faber[3] urges firstly, that all convalescent serum intended to be used therapeutically should be tested, and, secondly, that by testing the serum of transfusion donors a large and readily accessible supply of immune serum could be obtained. It was found that 77 per cent. of the donors tested were immune and use was made of this fact in the recent epidemic in California with satisfactory results. M. Neustaedter[4] has attacked the problem from a different aspect. Despite Flexner's original failure, he has attempted to immunise horses to the virus of poliomyelitis, and he succeeded in producing a serum which is capable of protecting monkeys from large intracerebral injections of potent virus. Pettit and other French workers have confirmed his findings and report the successful use of this serum clinically. In this country R. W. Fairbrother, and W. T. J. Morgan have done a good deal of work on the immunisation of horses, and a limited supply of their serum is available for trial,[1] but so far they have not drawn conclusions about its clinical efficacy.[5] Meanwhile these results are of great interest, and prompt one to hope that eventually we shall have a supply of efficient serum for use whenever necessary.

VITAMIN STANDARDS.

THE vitamins enjoyed an important rise of status when they became the subject of a conference called in London last June by the League of Nations Health Organisation, in connexion with the meeting of the Permanent Commission on Biological Standardisation. Here was a case of wise foresight; before the chaos

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[1] Gynäkologische Operationslehre. By Dr. Heinrich Peham, Professor of Obstetrics and Gynæcology at the I University Frauenklinik in Vienna, and Dr. J. Amreich, Privat dozent in the University, and sometime Assistant at the Frauenklinik. With 448, mostly coloured, original illustrations. Berlin: S. Karger. Pp. 766. RM.110.

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[1] See THE LANCET, Oct. 31st, p. 977.
[2] Proc. Soc. Exper. Biol. and Med., 1930, xxvii., 742.
[3] Jour. Amer. Med. Assoc., 1931, xcvi., 935.
[4] Ibid., p. 933.
[5] THE LANCET, Sept. 12th, p. 584.

of varying standards, whether of substances or of animal units, had time to develop in different countries, international coöperation came into play to secure such unity as might already be possible. Clearly all the vitamins could not yet be dealt with, but what one might call the senior group—vitamins A, B_1 (antineuritic), C, and D—seemed ready for consideration. Those attending the conference were a small group of the biggest figures in the purely scientific field, and they came well prepared with data, abundant and to the point. Though it had looked beforehand as if some of the problems might prove to be knotty ones—the relative claims, for instance, of cod-liver oil or irradiated ergosterol to be standard substance for vitamin D, and the suitability or otherwise of carotene to be the standard for vitamin A—yet, in fact, nothing could have been settled more smoothly, and the fruits of the conference's deliberations are now embodied in a terse unanimous report.[1] For vitamin A, carotene, prepared and preserved in a special way, is provisionally adopted as a standard substance, with cod-liver oil as a provisional second string. For vitamin D, a certain solution of irradiated ergosterol is recognised. For vitamin B_1, an adsorption product from a specially prepared extract of rice polishings; and for vitamin C, lemon juice. The methods of preparation are carefully specified, and also the amount of the substances whose vitamin value is to be reckoned as the unit. Scientific institutes are designated which shall be responsible for preparation and distribution of the standards, and lines of further research, against a future meeting of the conference in about two years' time, are indicated. International coöperation has seldom found a happier expression, while at the same time affording us the opportunity to behold in the flesh such legendary figures as Harry Steenbock and Elmer V. McCollum.

MEDICAL CERTIFICATION IN IRELAND.

WE gave last week (p. 1105) extracts from a circular issued by the National Health Insurance Commission of the Irish Free State to medical certifiers, dealing with the increase in the number of certificates of incapacity issued. The circular qualifies this increase with the word "undue," without stating what reason, if any, it has for assuming laxity on the part of the certifiers. The rules as given in the circular include a provision for the issue of a special form of notification to the Commission in cases in which a certificate has been refused, and a warning note is added informing medical certifiers that if they issue a large number of certificates without indicating a number of cases in which certificates have been refused, a special investigation will be made. For those accustomed to insurance practice in this country it is difficult to visualise the situation which will be raised by the proposed regulations, which apparently have the same force as similar regulations would have here in view of the notice given in the circular that the monetary penalty for breaches of agreement has been raised. Panel practitioners would regard as drastic, if not arbitrary, the requirement to issue a special form in every case in which a certificate is considered unnecessary, for this would increase his clerical work without compensating advantage either to the insured person or to the service. From the administrative point of view it may certainly be a cunning way of discovering how much pressure is exercised by persons who are not incapable of work on the easy-going and kind-hearted practitioner. But the rule would appear to place the practitioner in a cleft stick; he must avoid giving certificates, and he must seek to get refusal forms filled up, so that he may avoid the special investigation. Though it is conceivable that such a method would reduce sickness claims, it would, one fears, result in hardship on the insured population, for it is difficult to see how a practitioner can exercise an unfettered judgment in dealing with patients under such a scheme. Practitioners are recommended to refer cases of difficulty to the district referees, but it is pertinent to ask whether there is any obligation on the part of insured persons to submit themselves to examination. The position is quite different with references from approved societies.

LEISHMANIASIS IN THE ARGENTINE.

AMERICAN or Brazilian leishmaniasis is a scourge to the workers in the uplands of the Argentine. It has been treated since 1916 with intravenous injections of tartar emetic, tartrate of potassium, and pentavalent antimony. But it is difficult to find suitable veins; intramuscular injections cause great pain, anæmia sometimes results, and ulcers of the mucous membrane are but little improved. Recently Prof. S. Mazza and Dr. C. A. Aranda were fortunate enough to be sent a supply of Fuadin, a trivalent antimony derivative of pyrocatechin,[1] which they have found much more useful. In a 6·3 per cent. solution it causes no pain when injected intramuscularly, no sickness or other trouble, and it has proved a cure in numerous cases, of which three are reported in detail, with pictures. The second case, supported by five pictures in series, may be briefly mentioned. The patient, aged 9, was put by some compassionate person on the train to Salta in the north of Argentina, where a policeman found him and took him to hospital on June 3rd. He could only say he had been ill four years. He had a leishmania ulcer on the left temple, another involved both left eyelids, the orbit, part of the nose, the left upper and lower lips, and the gum beneath. The ulcers were covered with granulations and blackened stinking crusts; there was much loss of tissue, including the left ala nasi. Many leishmania parasites and bacteria were found in the discharge. This boy was given seven stibosan injections, beginning that day, the first five intravenous, the sixth and seventh intramuscular, causing great pain. There was slight improvement everywhere. Fuadin was then employed; intramuscularly it caused no pain, and striking improvement began at once. The ulcer over the temporal healed forthwith, then the ulcers of the eyelids, and in great part those of the lips and nose. Treatment was suspended on account of an attack of measles, but there was no relapse as would be expected under pentavalent antimony treatment. The course of fuadin was then resumed, 0·5, 1·5, 3·5 c.cm. on successive days, then on alternate days, 3·5 c.cm. seven times—a course of ten injections. On August 30th, after seven stibosan and 20 fuadin injections, all the ulcers were soundly healed without contraction, and the gum had also healed. Pictures of the conditions before and after treatment corroborate the clinical account.

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[1] Report of the Permanent Commission on Biological Standardisation. Annex IV. League of Nations Publications. Geneva. 1931. Obtainable from Messrs. Allen and Unwin, 38, Great Ormond-street, London, W.C.1. 1s. 6d.

[1] Arch. für Schiffs- u. Tropen-Hygiene, October, 1931, p. 583.

could be restored to B C G. He did not, however, see how, even if this possibility were realised, the case for vaccinating with B C G in its present state would be invalidated; and he suggested that if the principle of this argument were to be accepted as sound, hitherto generally practised methods of vaccination with a live virus, beginning with Jennerian vaccination itself, would have to be abandoned. He concluded with a comparison of the effects of preventive inoculations with living and dead cultures, and he emphasised the brevity and uncertainty of the immunity conferred by the latter. The next speaker, Prof. Gerlach, of Vienna, held that B C G must be considered as perfectly harmless to calves which undoubtedly acquire a certain degree of immunity from it. But another speaker, Prof. Blieck, of Utrecht, gave an account of numerous attempts to immunise pigs with B C G against tuberculosis. Although subsequent infection with virulent tubercle bacilli yielded more benign lesions than in the controls, Prof. Blieck had come to the conclusion that his experiments offered no great hope of protecting Dutch pigs from tuberculosis by means of B C G vaccination. Prof. Néri and Prof. Cramarossa, of Rome, had been unable to immunise rabbits with B C G to a subsequent infection with tuberculosis.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

"ECONOMIES."

THERE is no more regrettable sign of the general economic depression in Hungary than the fact that the Government—purely on financial grounds—is refraining from filling seven vacant university chairs. These are: at Pécs, the chair of general pathology and forensic medicine; at Debretzin, the chairs of pharmacology, pathology, and forensic medicine; and at Szeged, the chairs of pathology and forensic medicine. All of them are temporarily filled by professors of kindred branches, and the medical journals point out the folly of this thrift. The State saves only half of the salaries, because it has to pay a half share to the locum tenents. In the maintenance of medical institutions the salaries of the professors are the smallest item, the main expenditure being on equipment, laboratories, and the like. An ordinary professor gets as an initial salary only 528 pengö (about £20) a month, so the saving is really very little. Another line in which the State is trying to economise is by closing some hospitals entirely and by reducing the number of hospital beds. At present the city of Budapest has accommodation for 7500 hospital patients. The Economy Committee for the capital wants to close down 250 beds and dismiss the doctors who thus become superfluous. Against this draconian order not only the medical but also the lay press has vigorously protested, arguing that in the present circumstances, when there are hundreds of thousands of badly nourished, distressed people, and thousands of really ill people who are in need of hospital treatment and cannot get it because of the shortage of beds, the programme of reduction is contrary to humane feeling, as well as public health.

At the opening of the present university session 397 first-year medical students applied for registration. The Dean of the Faculty admitted only 200 and rejected the rest, although many had excellent credentials. He maintains that in the present distressed state of the medical profession it is his duty to limit the number of new students.

THE ZONDEK-ASCHHEIM TEST.

The hormone pregnancy test, as originally introduced, has two drawbacks—namely, the high immediate mortality among the mice and the long time required for the reaction to appear (about 100 hours). The first difficulty can be got over by shaking the urine with ether in such a way that toxic substances soluble in ether are removed, while the pituitary hormone is unaffected. The ether also removes some substance which restrains the reaction, and it is the experience of the Budapest Obstetrical and Gynæcological Clinic that blood-dots and yellow spots appear in greater number. When they added glucose this so much enhanced the biological reaction that the changes took place within 72 hours. At the Budapest Gynæcological Clinic the test is performed as follows: 30 c.cm. of freshly filtrated morning urine is shaken out in a separating funnel with 90–120 c.cm. of ether; the urine is then left to stand for an hour, and to it 0·9 g. of glucose is added. During the next two days the five young mice are given six subcutaneous injections of 0·5 c.cm., and 72 hours after the first injections they are killed and examined. The ovarian changes characteristic of the gravidity test—i.e., the blood-dots and corpora lutea—are so obvious that histological examination is superfluous. The reaction may be seen with the naked eye in a glycerin preparation or viewed with a microscope.

LAMBLIASIS IN HUNGARY.

Formerly it was thought that lambliasis does not occur in this zone, but during the war several cases were exactly diagnosed and observed. Owing to accurate laboratory tests lambliasis cases have been recognised of late in increasing number. Thus Dr. Purjesz, physician in chief in Gyula, has diagnosed four cases in quick succession. In all of them the predominating symptom was pain in the region of the liver, and in three there was also jaundice. In one of the cases the pain was so severe that the patient was operated on for gall-stones, and it was only when her complaints did not cease after operation that she came under Dr. Purjesz's observation. Chills, he says, are just as frequent as in cholecystitis; also symptoms of anæmia may develop in long-standing cases. Eosinophilia is not a cardinal sign of lambliasis, nor did he observe dysenteric forms. He did not succeed in demonstrating the encysted form in the fæces, but he found the vigorously moving pear-shaped lamblia in the duodenal secretion. It is important that fresh, uncooled duodenal secretion should be used in searching for the organism. In treatment Purjesz is a strong advocate of the salvarsan preparations. After administration of as little as 0·45 g. the patient's complaints may abate and the lambliæ disappear, though there may be a relapse after apparent cure. Some clinicians prefer to administer salvarsan by mouth; others like to give spirocid or stovarsol. The vermifuges used of old and the internal disinfectants are of no avail. Purjesz says that in future he will experiment with preparations given by mouth, because in this way the treatment may be long continued without inconvenience.

EUGENICS SOCIETY.—A meeting of this society will be held at the rooms of the Linnean Society, Burlington House, London, W., at 5.30 P.M., on Wednesday, Nov. 25th, when Prof. C. G. Seligman, F.R.S., will speak on Race and Temperament.

PUBLIC HEALTH SERVICES

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are 1930 statistics of Bristol, Bradford, and St. Helens:—

Name of district and estimated mid-year population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Respiratory diseases with influenza.	Heart disease.	Infant and neonatal mortality.	Young child (1–5 yr.) mortality.	Maternal mortality in childbirth.
Bristol .. .. (391,035)*	15·7	11·4	1·15	1·52	1·2	2·4	58/32	26	3·6
Bradford .. (293,254)†	14·9	13·4	0·89	1·61	1·6	2·9	75/37	30	5·3
St. Helens .. (109,200)‡	21·5	11·4	0·91	0·93	2·3	1·7	80/40	31	5·1

* R.-G. estimate for 1929, adjusted for city extension.
† R.-G. estimate for 1930. ‡ R.-G. estimate for 1929.

The preliminary census figures are: Bristol, 396,918 Bradford, 298,041; St. Helens, 106,793.

Registered stillbirths per 100 live births: Bristol, 3·8; Bradford, 5·3; St. Helens, 4·6.

Bristol.

Dr. R. H. Parry shows that the city has a big task in front of it in order to secure the coördination of the various medical services. There are ten voluntary hospitals to meet the needs of the city with regard to medical, surgical, maternity, and orthopædic work. The council now provides two hospitals for these purposes. Nevertheless, there is a distinct shortage of institutional beds. The hospitals have waiting lists, and cases for early diagnosis frequently become urgent before admission. The Bristol hospitals' council which represents all the institutions is giving serious consideration to the coördination of the work of the hospitals in the area, and a scheme has been prepared which will give immense relief to overcrowded institutions. Dr. Parry urges that the scarcity of beds interferes with the early diagnosis and treatment of cancer. Observation beds are needed for the diagnosis of tubercle. Southmead Hospital, transferred from the poor-law, used to admit non-notifiable infectious cases. An attempt to treat these at the isolation hospital, using the empty small-pox hospital as an annex, failed owing to the lack of beds. The temporary blocks at the isolation hospital are worn out and cannot be used much longer. Southmead Hospital has about 200 patients of the chronic sick type who do not require hospital treatment.

An epidemic of measles, which extended well into 1931, caused 113 deaths, all under 15 years and mostly under 3 years. The last epidemic, two years ago, caused 99 deaths. Cases from unsuitable homes were admitted to the isolation hospital. The medical superintendent, Dr. B. A. I. Peters, states that the use of convalescent serum in preventing the disease in contacts was useful. He would prefer to have measles treated in smaller wards; 167 cases were treated in a 26-bed ward, of whom 23 died, a percentage (14) similar to the last epidemic, when the cases were also treated in large wards. Another 150 cases were treated in an observation ward containing four cubicles with four beds in each, and of these only six died. Dr. Peters suggests that in the large wards there may be exposure to a greater variety of secondary organisms, and secondly, that as measles children are always miserable and *crying* when awake, there should be more chance of sleep in the smaller wards. Since 1920 the notifications of pulmonary tuberculosis have declined by 40 per cent. but there has been no fall in the deaths. The proportion of non-notified cases is still high, and Dr. Peters says that patients are being admitted to Ham Green Sanatorium at an increasingly late stage in the disease. There are two tuberculosis dispensaries within a mile and a half of each other, both converted houses. A new central dispensary is needed. Only 50 samples of milk were examined for tubercle. and six were found to be infected.

Diphtheria was prevalent. especially during the first quarter; 1484 cases were notified, 1374 being admitted to hospital. The disease was of a very severe type, the deaths numbering 41, a fatality-rate of 2·8 per cent. Of the 41 fatal cases, 29 had not received serum treatment before admission to hospital. Immunisation was carried on at the schools, at one infant welfare clinic, and in the city hospitals. Altogether, 6524 children have received a full course. about half of the parents asked giving consent. Dr. I. G. Davies has noted five cases of fairly severe reaction. The children who contracted diphtheria during immunisation were as follows:—

After first injection.. .. .. 4 virulent, 11 mild, 2 doubtful.	17
After second injection .. .. 4 virulent, of which one ended fatally four days after second inoculation.	13
After third injection .. .. 9 virulent, with one death 85 days after third inoculation.	31
After three injections and being Schick-tested .. .. 5 of these were Schick-negative and 5 Schick-positive. There were no deaths in this group.	10

Dr. Davies comments that it is disconcerting to find cases of clinical diphtheria occurring in Schick-negative children and at such periods after the course. The periods varied from 185 to 204 days.

The venereal diseases clinic is held at the Bristol Royal Infirmary, but Dr. Parry points out that the liaison between the clinic and the municipal antenatal clinics is not sufficiently close, and that there is definite need *for a* system of following-up contacts, especially in regard to women and children. Most of the chronic venereal cases find their way to Southmead Hospital, and they also are not properly linked up with the clinic.

Bradford.

Dr. J. J. Buchan says that the accommodation in all kinds of institutions available for Bradford is more than 3500 beds, or about one bed to 80 of the population. During 1930 the three voluntary hospitals *admitted* 9590 cases, whilst the municipal hospitals *admitted* 9497. At the end of the year the public assistance institutions housed 1261 persons, and there were 180 patients in institutions for the mentally defective. During the year, 7·2 per cent. of the deaths *occurred* in voluntary hospitals, 24·8 per cent. in municipal hospitals, 3 per cent. in public assistance institutions, and 1·8 per cent. in lunatic asylums. *The* percentage of the total deaths occurring in public institutions was 37·2. The eleventh report of the municipal general hospital shows a great increase in the work. Thus, in 1920 the admissions were 3804, the live births 158, and the number of operations 428, whilst in 1930 admissions numbered 6591, live births 789, and operations 2117. The *new* patients attending the hospital antenatal clinic numbered 875.

There were 351 cases of diphtheria with 21 deaths—a case-fatality of 5·9 per cent. Scarlet fever cases numbered 1282 with 18 deaths—a case-fatality of 1·4 per cent. During recent years the death-rate from pulmonary tuberculosis has shown a tendency to rise amongst men and to fall amongst women. During the last four years the divergence between the sex-rates has been greatest, the male-rate being double that of the female. Dr. Buchan is at a loss to account for the low rate among females since 1926. The cancer investigation proceeds with the full coöperation of the medical profession, and records are accumulating as to the incidence, prognosis, and effects of treatment, which will throw some light on the position. Two cases of undulant fever were detected in the city and a small outbreak occurred in an institution, resulting in three definite cases and some doubtful ones. Investigation of the milk-supply revealed cows suffering from infectious abortion.

Municipal houses completed numbered 210, and a new site for 770 houses is being developed. All the properties in the White Abbey area have been acquired and 77 per cent. demolished. Photographs indicate the contrast between the old property and the houses which have now been completed and occupied on the site. There is still serious overcrowding and a scarcity of houses. The applicants for new houses number 3832, 849 of whom are living in apartments.

Mr. W. Halstead, M.R.C.V.S., states that the average cow population is 4133, housed in 204 dairy farms. In these herds 14 cases of tuberculosis were found by inspection, 11 of which had the udder affected. Of 276 samples of outside milk, seven were reported tuberculous. As a result two cows with udder tuberculosis were found on two farms, but in the remaining five the source of contamination could not be traced. The city dairy farms have been much improved recently, but there is still an ill-founded reluctance on the part of farmers to make full use of the clipping machine on the flanks and udders of the cows.

St. Helens.

Dr. Frank Hauxwell says that St. Helens used to supply half of the patients in the Whiston (poor-law) Infirmary which has now been transferred to the Lancashire County Council. There is an arrangement by which its public assistance patients can be sent to Whiston for five years. As the demand for hospital accommodation is increasing, Dr. Hauxwell points out the great need for a municipal hospital. There are two general hospitals with 136 and 130 beds, but their accommodation is overtaxed. Up to the present the poor-law service both as regards institutional treatment and medical out-relief remains as before. The blind, however, have been taken out of the poor-law and Dr. Hauxwell particularly urges that the young children, without parents or relatives able to maintain them, who are at present admitted to poor-law nurseries, should be immediately removed.

A new maternity and children's hospital to accommodate 15 maternity cases and 22 ailing and debilitated children was opened in April, 1931. During 1930 the corporation provided for 468 maternity cases at the St. Helens Hospital and for 58 at the Old Whint Hospital. The Old Whint Hospital has now been closed and the children transferred to the new hospital. All municipal maternity cases will be admitted in future to the new hospital. Births numbered 2343, and 850 women attended the antenatal clinics. Of these, 179 were sent by midwives and 16 by doctors. Most of the patients sent by midwives were primigravidæ. Dr. Hauxwell presses for a postnatal and gynæcological clinic, and the council has applied for the Ministry's approval to the establishment of such a clinic, where advice on birth control can also be given on the restricted lines laid down by the Ministry.

Measles was again prevalent in 1930, and instead of occurring as formerly on alternate years, this is the seventh year in succession in which measles has been epidemic during some part of the year. The isolation hospital has accommodation for 136 patients, but is badly in need of a block of single cubicles. There is much delay in notifying pulmonary tuberculosis. In more than a quarter of the cases notified last year the duration of life after notification was only six weeks. The present X ray apparatus at the dispensary is practically useless for diagnosis purposes, and a modern apparatus is necessary, but the dispensary itself is in need of transfer to more suitable premises. Only 54 contacts were examined during the year.

In his 1929 report, Dr. Hauxwell stated that the emission of black smoke from industrial chimneys was about three times what it ought to be. The observations made in 1930 confirm this statement. The range of black smoke varied from 0 minutes to a maximum of 30 minutes during the half-hour observations. The average emission per half hour was 5·85 minutes as compared with 6·06 minutes in the previous year. There are about 18,500 inhabited houses and the local authority owns 2148. The prevailing types are of 4- and 5-roomed houses. There are no underground dwellings and only 120 back-to-back houses. There is a considerable shortage; and of 1100 applicants for municipal houses, 32 per cent. were found to be overcrowded. Much of the overcrowding is due to several generations occupying the same house. There is considerable difficulty in obtaining suitable sites mainly owing to the danger of colliery subsidence. During the next five years it is intended to deal with eight improvement areas and 255 individually unfit houses, and to erect 1199 houses of which 800 will be for new housing.

SCHOOL MEDICAL SERVICE.

—	No. on roll.	Average attendance.	Routine inspections.	Special exams. and reinspections.	Percentage of defects.
Colchester ..	5,811	89 %	1,708	3,210	23·0
City of Leeds	57,223	—	18,253	66,299	31·3
Brighton ..	16,372	14,990	4,691	5,363	18·4

Colchester.

Dr. W. F. *Corfield's* report contains many of the signs of efficiency. Ascertainment is thorough, and the parents' appreciation of the medical inspections is shown by the fact that they were present with 85 per cent. of the children. Skin diseases show a marked decrease; cleanliness in several schools reached the 100 per cent. level, which well deserves their enumeration. The provision for exceptional children, except for two groups, is nearly complete. An inquiry was conducted by Dr. R. W. Cushing over the past 18 months into the frequency with which the heart suffers more or less permanent damage after scarlet fever. Of 341 children who had been in hospital in a given year, over 26 per cent. showed signs and symptoms of heart trouble, usually myocardial, only 1·4 per cent. being deemed to have valvular disease. From experience with Army recruits and candidates for appointments many medical officers had their suspicions, but Dr. Cushing's figures are surprisingly high; they also indicate the desirability of a special class for delicate children. It is a pity that in the pursuit of economy the inclusion of such a class and a room for sunlight treatment was cut out when the new school was built at Loxden. The most noteworthy advance made in the year was the appointment of a so-called full-time dentist, who was given the assistance of a dental nurse. How much there was to do is seen in the fact that 87 per cent. of the children inspected required dental treatment, many of them with seriously septic conditions. The dentist, Mr. J. F. Godfrey, L.D.S., devotes special attention to conservative work, and the effect of his appointment may be judged by the following figures:—

Fillings.	1928.	1929.	1930.
Permanent teeth	703	927	1575
Temporary teeth	27	58	444
Total number of fillings ..	730	985	2019

Casual dental patients are not encouraged, for they disorganise the plan of systematic treatment. To make the scheme adequate, the dentist should be really full-time; that is, he should be transferred to the borough on the three half-days devoted to county work. There should be a special room for the dental clinic alone. Dental education is given in the form of lectures on oral hygiene, and Mr. Godfrey thanks the teachers who have aided him in his efforts.

City of Leeds.

Dr. A. Wear notes that at the end of the year 1930 there was again unfinished work which had to be carried over to the next year, including vision, throat, and dental cases. It would thus appear that the school medical staff needs strengthening. There is a central clinic with eight branches, each of which supplies the needs of its own district except for the more specialised work. One branch clinic, that at Meanwood-road, is in need of drastic alterations. The aural surgeon, Mr. A. Sharp, considers that nasal sinus infection is present far more often than commonly supposed, giving rise to general debility, chronic cough, and early bronchiectasis. In these children, who are mostly over 6 years of age, the prevailing symptoms are frequent winter colds, frontal headache, and intermittent discharge from the nose. The turbinals appear large, pale, and flabby, and there is pus or muco-pus in the lower or middle meatus. The sinus involved is usually the maxillary antrum, rarely the ethmoid, hardly ever the frontal. Many of them get well with simple saline treatment persisted in over a period of months. He adds that at least 10 per cent. of tonsil and adenoid cases have infected sinuses; half of these get well if tonsillectomy is thorough, the turbinals are cauterised, and nose drill is carried out, but in others the antrum must be drained through the lower or middle meatus. In the past year there have been 100 cases of this obstinate type. Dr. George Stockwell, after a critical survey of the facts, records disappointment with the results of treatment by artificial sunlight. Four trained nurses are employed full time in the teaching of mothercraft. An inquiry into the relation between altitude and the prevalence of respiratory disease, begun in 1925, has been continued, and the evidence that chest disease is much more frequent at low altitudes is increasingly strong this year, the ratio being nearly 4 to 1. For some years Dr. Stockwell has been trying to devise some simple means of assessing the nutrition of any child at the routine inspections. In practice he finds the quotient, weight in pounds divided by height in inches, to be useful. Plans for an open-air school at Farnley have now been approved.

Brighton.

In many areas institutions formerly administered by the guardians have been taken over by education committees, with the result of increasing the school medical officer's duties and widening his interests. At Brighton, for example, the access of medical inspection to the Warren Farm School has revealed a group, small it is true, of well-nourished children with a striking prevalence of healthy throats. Treatment of tonsils and adenoids in the elementary schools, delayed by epidemics, has now been caught up, 316 cases having been dealt with. The results have been good; in 92·6 per cent. of children suffering from deafness there was cure or improvement, in 90 per cent. discharging ears dried up, and two-thirds of the children with enuresis were cured. Dr. Duncan Forbes does not further comment on these figures, but the improvement of enuresis is of special interest. Several reasons have been suggested for this happy result. Some authors explain the cures by suggestion, but this can scarcely be a complete explanation, for other operations do not have so marked an effect. Others note that adenoids and enlarged tonsils obstruct breathing, and thus produce increased abdominal pressure—a hypothesis which has good support, though it seems too mechanical to be complete. Others, again, point to the way in which adenoids interfere with sleep.

Skin conditions associated with dirt seem rather common. Impetigo and septic sores together total nearly 2000, and scabies shows a substantial increase. Ringworm, however, has become less prevalent in Brighton as in so many other places. The orthopædic department has been transferred to new and better premises, and is continuing its beneficent activities with cases sent not only from the schools but also from infant welfare departments (38 cases) and the tuberculosis department. Brighton is fortunate in being the headquarters of a guardianship society which holds three industrial classes, for boys, girls, and juniors respectively, and relieves parents of the care of ineducable children. The dental staff is inadequate, now that parents are beginning to realise the need for proper care of the teeth. The number of casual cases—viz., 1893—is a great increase on previous years, and cannot be considered altogether a good sign. School closures were rather extensive, over 13 departments being concerned, though for the most part only for the younger infants. The provision for exceptional children appears satisfactory, save for the lack of an open-air school. It may seem paradoxical for one to be needed in Brighton, but there are in fact 122 delicate children on the registers.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED NOV. 7TH, 1931.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 71 (last week 42); scarlet fever, 1860; diphtheria, 1035; enteric fever, 36; pneumonia, 1141; puerperal fever, 44; puerperal pyrexia, 120; cerebro-spinal fever, 33; acute poliomyelitis, 4; acute polio-encephalitis, 1; encephalitis lethargica, 10; continued fever, 1; dysentery, 25; ophthalmia neonatorum, 90. No case of cholera, plague, or typhus fever was notified during the week.

Of the 71 cases of small-pox 55 were reported from the county of London, and of these 43 from Lambeth, 4 each from Bethnal Green and Islington, 2 from Finsbury, and 1 each from Camberwell and Wandsworth.

The number of cases in the Infectious Hospitals of the London County Council on Nov. 10th–11th was as follows: Small-pox, 113 under treatment, 5 under observation (last week 101 and 6 respectively); scarlet fever, 1774; diphtheria, 1493; enteric fever, 10; measles, 227; whooping-cough, 400; puerperal fever, 15 (plus 11 babies); encephalitis lethargica, 220; poliomyelitis, 5; "other diseases," 157. At St. Margaret's Hospital there were 6 babies (plus 1 mother) with ophthalmia neonatorum.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 1 (0) from enteric fever, 22 (2) from measles, 1 (1) from scarlet fever, 20 (4) from whooping-cough, 33 (8) from diphtheria, 74 (14) from diarrhœa and enteritis under two years, and 66 (6) from influenza. The figures in parentheses are those for London itself.

Manchester reported the only fatal case of enteric fever. Three deaths from measles were reported at each of Stoke-on-Trent, Liverpool, and Manchester. Liverpool also reported 3 deaths from whooping-cough. Diphtheria claimed 6 victims at Liverpool, 3 at Hull, 2 each at East Ham and Manchester. Diarrhœa was credited with 5 deaths each at Nottingham and Liverpool, 4 each at Birmingham and Manchester, 3 each at Stoke-on-Trent, Birkenhead, Leeds, and Hull.

The number of stillbirths notified during the week was 238 (corresponding to a rate of 37 per 1000 births), including 39 in London.

ARUNDEL HOSPITAL.—The Duchess of Norfolk on Nov. 7th opened a new cottage hospital, erected on a site given by her son, the Duke, on the Chichester road. The original hospital, founded in 1906, was carried on by the Norfolk family until 1917, when it was taken over by the town. Of late it has proved much too small for present needs, and last summer, following a gift of £5000 from Miss Kathleen Mitchell, of Arundel, and the gift of a site, the governors decided to build a new hospital.

CORRESPONDENCE

ANÆSTHETISTS IN THE UNIT SYSTEM.

To the Editor of THE LANCET.

SIR,—It is common knowledge that the members of the medical profession derive great satisfaction and prestige from the enormous amount of charitable work which they perform, and in none is this feeling more obviously displayed than in those who are privileged to serve in an honorary capacity, in what were formerly the great free hospitals of the country. Anything in such a service which might be regarded as an injustice to individuals must inevitably operate in the same manner as a piece of grit in an otherwise smoothly working mechanism, and should be sought out and removed. Recent progress has resulted in the formation of teaching units whose work pertains rather to the medical school than to the hospital, and it is now possible to find specialists in anæsthetics working in an honorary capacity side by side with highly paid whole and part-time officers, whose salaries are derived from a flourishing incorporated institution which may be only one constituent of a still greater university, receiving a very substantial educational grant from the national treasury.

I am aware that in some instances none has been found willing to work under these conditions, but it would be interesting to know what kind of defence, if any, can be put forward by those responsible for this programme, in favour of thus discriminating against one member of a team whose work in the operating theatre is an essential antecedent to that of the other members.

I am, Sir, yours faithfully,
W. HOWARD JONES.
London, W., Nov. 15th, 1931.

ALBUMINURIA IN PREGNANCY.

To the Editor of THE LANCET.

SIR,—May I offer some observations on one or two points raised by your leading article of Oct. 31st? Constriction of the chest by a tight band, the position of lordosis, slow breathing, filling the belly with saline solution, and severe exercise—any of these manœuvres may cause albuminuria and they all act by producing congestion of the kidney. Congestion causes a severe parenchymatous degeneration of the kidney, lowers its resistance to infection, and may possibly lead to nephritic changes. Not all the competitors in a cycling race suffer from albuminuria after the race, but half of them may pass large amounts of albumin and casts of all kinds in their urine. If the position of lordosis adopted for 40 minutes can increase the permeability of healthy kidneys to albumin for 24 hours, I submit that it is reasonable to suppose that a lesser degree of congestion, frequently effected, could alter this permeability for several weeks or even months. I did not feel justified in attempting to prove this contention, but it is open to anybody who doubts it to place himself—or some volunteers—in Walcher's position twice daily for a week.

Eclampsia undoubtedly occurs apart from albuminuria and it is, I suggest, immaterial whether 20 per cent. or only 5 per cent. of the cases are known to have passed a urine free from albumin shortly before the convulsions commenced. It is also known that a woman may recover completely from eclampsia and give birth to a living child some four or five weeks later. I have at the moment three patients under my care who suffered from severe albuminuria during pregnancy. In none of them was the albuminuria discovered until after the eighth month of pregnancy and in no case were casts found in the urine. Now, after periods ranging from six weeks to three months after confinement, they are all passing considerable, although decreasing amounts of albumin in their urines. Is it to be seriously contended that a nephritis, of any kind whatever, could have such a sudden onset, and provoke such a degree of albuminuria without casts appearing in the urine?

I fully agree with Dr. Gibberd that pregnancy causes severe damage to patients who suffer from chronic nephritis. I also agree that chronic nephritis is not always associated with albuminuria; indeed, in laboratory animals practically never. I feel however that the upright position makes it probable that if every specimen of urine passed for a week were carefully examined, both albumin and casts would invariably be found at some time in every patient suffering from chronic nephritis. He claims that pregnancy is a *delicate* test of the kidney functions, but does not make it clear whether some hypothetical toxin or increased work provides the test. I would suggest that he endeavour to procure the kidneys of patients he has labelled as occult nephritis, who happen to die from some accident, and demonstrate the lesions associated with that condition. He will forgive me if I prophesy that they will be as difficult to find as in the kidneys of the only patient suffering from orthostatic albuminuria who is reported as having come to autopsy. Certain it is that the kidneys from the majority of women dying from eclampsia or toxæmic accidental hæmorrhage show no nephritic lesions.

In the meantime perhaps he would test the permeability of the kidneys of his cases of occult nephritis to albumin, either by placing them in Walcher's position or by giving them the whites of eight eggs in 25 c.cm. of alcohol on an empty stomach? It is surely significant that out of the limited number of *apparently healthy men and women* I examined, two suffered from an extreme degree of albuminuria as a result of the manœuvres I recorded.

I am, Sir, yours faithfully,
G. W. THEOBALD.
Devonshire-street, W., Nov. 17th, 1931.

CANCER OF THE CERVIX.

To the Editor of THE LANCET.

SIR,—In your issue of Nov. 14th Mr. Stevens refutes the extraordinary statement made by your reviewer of his book "Diseases of Women"—viz., "It is unfortunate that Mr. Stevens should perpetuate the error that the most frequent variety of cancer of the cervix is the squamous epithelioma. By far the most common variety is columnar cancer; squamous epithelioma is really rare."

Your reviewer is apparently still unconvinced of his error, yet the true facts are easy to find out. It is the custom in most leading clinics, treating cancer of the uterus with radium, to make a biopsy of every case and to keep a section, in order to provide scientific evidence. At the present time there must be thousands of sections available for reference. At the Marie Curie Hospital we have already treated over 700 cases of cancer of the uterus and all the sections are available since the clinic started work six years ago. About 90 per cent. of the cases of cancer of the cervix are squamous epitheliomata. This figure agrees very closely with the reports from such centres as Radiumhemmet, the Fondation Curie, the Mayo Clinic and the Memorial Hospital, New York. It is, in fact, difficult to accept your reviewer's opinion seriously.

I am, Sir, yours faithfully,

HELEN CHAMBERS.

The Marie Curie Hospital, N.W., Nov. 16th, 1931.

To the Editor of THE LANCET.

SIR,—Mr. Stevens's letter of protest to the statement of your reviewer that in carcinoma of the cervix "by far the most common variety is columnar cancer; squamous epithelioma is really rare" was fully expected; for it was clear that such a view, so contrary to the opinion of the recognised authorities, could not pass unchallenged. The greatest authority on the histology of carcinoma of the cervix in recent times was the late Prof. F. Kermauner, who expressed the view, as recently as 1928, that squamous epithelioma of the cervix was ten times as frequent as columnar cancer. I believe that the opposition to the opinion of your reviewer would be overwhelming if all the available evidence could be collected together. The reiteration of his view in the footnote to Mr. Stevens's letter necessitates further discussion. Perhaps the following points may help to explain the doubts which one supposes exist in his mind.

Metaplasia is commonly seen in all forms of carcinoma of the uterus. Small areas of squamous metaplasia can usually be seen in carcinoma of the body; in carcinoma of the isthmus, metaplasia is invariably extreme, and squamous cells frequently outnumber the columnar cells. In both cases, however, the tumour is primarily an adenocarcinoma and the metaplasia a secondary manifestation. In the cervix, columnar-celled growths are rare, and I personally should have thought they were less common than Kermauner believed. The carcinoma of the cervix which is seen most frequently is a squamous-celled growth, but it is not uncommon to find cervical glands closely related to the malignant squamous cells in the depths of the growth. In these areas the structure is not that of an adenocarcinoma with squamous metaplasia of the malignant cells; the malignant change primarily involves the squamous cells.

I presume that your reviewer prefers to call the common type of carcinoma of the cervix a columnar-celled growth because the transition between the columnar cells of the glands and the squamous cells of the growth can frequently be demonstrated. I do not think that this opinion demands any great respect for the following reasons. Most of the very early carcinomata of the cervix that one sees can be demonstrated to arise from the squamous epithelium of the portio. It must also be remembered that the epithelium in the neighbourhood of the external os s in a state of dynamic equilibrium in the type of ervix which tends to become cancerous, so that ealthy columnar cells are continuously undergoing metaplasia into squamous cells. A similar relation f squamous cells to columnar cells is therefore to be xpected in the base of a carcinoma of the cervix. Most important of all, however, is the almost invari-ble absence of malignant change in the columnar ells of the glands which lie in the vicinity of the rowth. If this common form of carcinoma of the ervix were composed of a deep layer of adeno-arcinoma with squamous metaplasia of the surface cells, something might be said of the reviewer's point of view: but this is not the case.

I presume also that your reviewer limits the term squamous epithelioma to the "ripe" or cancroid tumour of continental authorities. I think it is generally admitted that this growth belongs to the same group as the common form, and that its characteristics are determined by the degree of differentiation of the malignant cells. If the view of your reviewer is accepted all sorts of troubles can be foreseen. For example, he might maintain that the vagina is lined by columnar cells and that the cells we see are not squamous at all, but only columnar cells in a state of metaplasia.

Lastly, the book under review is intended for the use of students. It seems unreasonable to inflict more controversial matter upon them.

I am, Sir, yours faithfully,

WILFRED SHAW.

Weymouth-street, W., Nov. 14th, 1931.

PSYCHOLOGICAL ASPECTS OF GYNÆCOLOGY.

To the Editor of THE LANCET.

SIR,—Dr. Fairbairn, in his Bradshaw lecture (Nov. 7th, p. 999), has performed a very great service by calling attention, in his clear, forcible, and robust fashion, to the fact that there is a psychological aspect, I will not say of gynæcology, but of women; a fact in this country almost universally ignored, at any rate by those medical men and women who are not psychologists. But, may I venture to suggest that Dr. Fairbairn will perform an even greater service if he calls attention to the need for the incorporation of the psychological study of women and their disorders in gynæcology, *on the basis of one of the recognised psychological techniques.* The need is clamant for not only every gynæcologist, but every *doctor* being acquainted with some psychological technique, no less than with some Listerian, some Pasteurian, some clinical, and some "post-mortem" technique. A vague eclecticism, a dilettante recognition of the "psychological factor in disease" is of as little value nowadays as would be the practice of urinoscopy in place of the modern biochemical techniques. Why, then, should there be hesitation in recognising the fact? Cannot the new College of Obstetricians do something about it? Or is that excellent body going to be content to fulfil the kind of functions that, in another relation, are performed by the College of Heralds, the City Companies, and our gradually dying ecclesiastical and academic institutions—so few of which have any relation to modern life?

May I give point to my remarks? Twice within the last twelve months have I seen an active woman, under the age of forty, sterilised by means of X rays, under the pretext that the "artificial menopause" would bring her relief from her many physical ailments. Both women are attractive and intelligent; both are married. The first complained, and with reason, of intense menstrual pain: the second, of intense and almost continuous migraine. In each case the physical ailments were and are the expression of intense mental suffering. The first woman, married twelve years ago, is still a virgin, a fact ignored by the gynæcologist who sterilised her: the second, although the mother of a child born in the first year or two of married life, tells me that her husband has been *impotent* for twelve years.

A few months ago I called attention in your pages to the indignation with which the Duchess of

Atholl had spoken in Parliament concerning the ritual circumcision of African girls living under the British flag. I venture to think that the wanton and ignorant sterilisation of British gentlewomen by gynæcologists, merely because these gynæcologists are too ignorant to appreciate the origins of neurosis, is an abomination which can hardly be sufficiently condemned. One is tempted to ask why no woman doctor has yet lifted up her voice to help her own sex towards a recognition of the "psychological factor" in their many special ailments, or some of them. Can it be that too many women doctors, unacquainted with modern psychological work, are also too unacquainted with some aspects of *life* to be altogether safe guides to their fellow-women in some matters? I almost fear it may be so.

Recently I saw an intelligent and attractive woman of forty whose distress about the amputation of her breast is severe and lasting. The breast was removed—admirably from the surgical point of view—by a clever woman surgeon. *After* the complete removal of the breast, the verdict of "non-malignant" was given, and surprise was expressed that the patient, instead of being joyous at the good news, deplored the unnecessary removal of what had been her pride, and the fact that she is now, as she says, "mutilated" for no good reason. Could not the verdict of the pathologist have been arived at *before* the complete operation was performed? And how could anyone who knows what life is, for one moment fail to realise the agony caused to a woman who, at forty, sees what she considers her last chance of gaining a man's love taken from her by another woman's thoughtlessness? Far be it from me to suggest that women doctors are in anyway less than men's equals: my point is just this, that both men and women doctors, who are masters of technique, *but not of life*, fail utterly when it comes to the point. But, to return to the two sterilised, and yet still desirous wives of impotent husbands, what would a gynæcologist or a radiologist say if *his* castration was proposed on account of *his* neurosis arising from his wife's infidelity? Sauce for the goose is surely sauce for the gander.

Is not the time gone by when there can be any pretence that medicine, surgery, and gynæcology, *without* psychology, are aught but barbarous and insufficient?

I am, Sir, yours faithfully,
F. G. CROOKSHANK.

Wimpole-street, W., Nov. 17th, 1931.

COMPILATION OF HUMAN PEDIGREES.

To the Editor of THE LANCET.

SIR,—May I be allowed to say that I derived much pleasure from reading your annotation with the above heading in your issue of Oct. 31st (p. 975). I am familiar, through the courtesy of Dr. C. P. Blacker, General Secretary of the Eugenics Society, with the comprehensive schedule for recording pedigrees of disease and defect, drawn up by that body, to which you refer. It is, in my opinion, high time that serious attention were given to the importance of having accurate and full records of family and personal disease and defect, both by the profession and the public. With a view to enlightening the public I should like to see advantage taken of platform and press, and I trust the Eugenics Society has designs to this end. At the meeting of the British Association on Sept. 25th last, Dr. Blacker read an instructive paper entitled the Rôle of Genetics in the Future of Preventive Medicine, which may be studied with profit by all desirous of information on this subject.

My experience has been in the domain of psychiatry, that branch of it connected with public mental hospitals. I have taken, and seen taken, and studied, family and personal histories, in accordance with carefully prepared headings, for 39 years in respect of in-patients, of out-patients, also, for the last seven of these. My experience has been that if one can carry the tale back to the patient's grand-parents that is usually as far as one can get; often to the grand-parents on one side only. Concerning aunts, uncles, cousins, the information has been scrappy, and most of us, I fancy, are in the same position as regards our own anamnesis. In any case, all this is based on recollection. Yet upon such meagre and uncertain data one has been asked to assume grave responsibility in such matters as the outlook for recovery and relapse of the patient, the propriety of his marrying, should he recover, the prospects of his children and relatives. Is it not the case that, apart from what one may call rarities, such as Friedreich's ataxy, hereditary cerebellar ataxy, hæmophilia, pseudo-hypertrophic muscular paralysis, Huntington's chorea, we know exceedingly little about the transmissibility of disease and defect, or the tendency thereto? Assuming that the Royal College of Physicians were requested to set up a committee for the purpose of formulating information to serve as a guide to practitioners on the subject of inheritance of disease and defect, is it reasonable to expect that reliable information could be given, apart from pathological curiosities? I think not; nor will the necessary data be available until some system is devised by which family pedigrees, with individual case-sheets, such as those issued with the comprehensive schedule of the Eugenics Society, are kept under medical supervision, and have been kept for several generations. Such a system would start on a voluntary basis as a result of educational propaganda and end by being made compulsory, under the ægis of the Ministry of Health.

It has recently been suggested that everybody's finger-prints should be compulsorily recorded. A praiseworthy idea, since we are all potential criminals. Should the pound fall to five shillings I shall have no scruples about purloining provender from the shops, thereafter invoking the hospitality of His Majesty. Whoever made this proposition has overlooked the well-known maxim about excess of zeal. In these days, to show zeal is to be written down as "cycloid" if not classed as an out-and-out "cyclophreniac." Should the impeachment be just, there is the added and serious risk of transmission to one's offspring. The case for compulsory pedigrees has nothing to fear from comparison with that for compulsory finger-prints. At the German Research Institute for Psychiatry (Kaiser Wilhelm Institute), Munich, there is a genealogical-demographical department, under Prof. E. Rüdin. Amongst investigations carried on there is a series concerning the inheritance of schizophrenia and manic-depressive insanity. The belief that the descendants of persons suffering, or who have suffered, from these conditions are definitely more liable than the offspring of the average population to be psychotic or psychopathic is pretty widespread amongst specialists. The German workers seek a scientific foundation for it, and the figures of transmission they have already published are very significant. We have here nothing comparable to this institute, although the psychoses and psychoneuroses may, with much reason, be regarded as the most important medical fields from the standpoint of information concerning hereditary transmission.

Dr. Blacker, in the paper alluded to, envisaging the time when accurate records will be available of the heredities of all permanent residents in the United Kingdom, refers to advisory centres analogous to the German "marriage advice bureaux," which it is to be hoped will hereafter be set up throughout this country, under the jurisdiction of the local authorities, at which a well-grounded genetic opinion will be obtainable. The following citations from his paper may be permitted.

> "It is certain that in the future medical men will be increasingly consulted upon questions of eugenic prognosis, and that knowledge of the elementary principles of genetics in their application to man will play an increasingly important part in the medical man's equipment." Dr. Blacker would therefore suggest "to those medical schools which may have occasion to revise the schedules of their biological preliminary examinations that an elementary knowledge of the principles of human genetics may well prove to have a considerably greater usefulness than much that is now taught."

And in order to interest the medical profession in the problems of human heredity he suggests the formation of a section of the Royal Society of Medicine whose subject would be human genetics.

I have not yet seen any thorough account of the working of the German marriage-advice bureaux. If not already undertaken, the subject seems worthy of study and report by a properly qualified British observer. According to a recent article[1] by Prof. J. Wagner-Jauregg, of Vienna, there are many more than 100 of these "Eheberatungsstellen" in Germany, and there is one in Vienna. But it seems that only a few take advantage of them, and the number so doing has scarcely increased although the bureaux have been open some years. The above is my note at the time of reading the article, but, although unnoted, I feel sure I am correct in adding that Prof. Wagner-Jauregg makes a further statement, to the effect that the persons mainly seeking advice belong to the more conscientious, rather over-scrupulous kind, the kind whose marriage is desirable, but who are apt to take too seriously reservations and criticisms made by the expert whom they are consulting, on the basis of their information, and to abstain from marriage. Nevertheless, I believe that a demand for these advice bureaux will gradually arise with the spread of education.

It is certain that no such centres can function until there are properly trained experts available to take charge of them. Such training cannot be given except on the basis of knowledge which has accrued from carefully kept, adequate records of personal and family disease and defect, extending over several generations.

I am, Sir, yours faithfully,

Hove, Nov. 7th, 1931. EDWIN GOODALL.

FEMALE CIRCUMCISION.

To the Editor of THE LANCET.

SIR,—Dr. Sequeira's paper (Nov. 7th, p. 1054) should be noted by all who are interested in the welfare of the natives of Africa. He has reviewed the subject in full, and this should be of value to the many persons in this and other countries who have imbibed strange ideas about native customs. As one who has practised in Nigeria for many years, and who has seen the natives under all circumstances, may I say that female circumcision there is practised not only because it is the custom, but because mothers and girls say they are ashamed for the clitoris to be visible to the members of the family when bathing in the river or when naked in the house. Even after a woman has been married, if the *labia* hypertrophy she will not rest until something has been done to remove the offending skin. Among the pagan natives the circumcision is done either by an old woman, or the blacksmith, who also files the teeth of the children to make them more handsome in appearance.

Many well-meaning persons judge the customs of the natives from their own point of view, but until one finds the motives which inspire the actions of the African native, it is useless to criticise them. They could show in many ways an example to many civilised persons, and their gratitude when given surgical or medical relief from their sufferings is astonishing. They live up to their knowledge, and no one can do more than that. I lived in a town with over 80,000 natives, and a province of 17,000 square miles gave me opportunities for seeing all phases of native life. I have a great deal of sympathy with them in their methods of life, and I found that having been shown a way which meant health for them and their children, they were always ready to listen to my advice.

As far as Nigeria goes I have never seen any ill-effects of female circumcision.

I am, Sir, yours faithfully,

J. R. C. STEPHENS.

St. Austell, Cornwall, Nov. 15th, 1931.

HUGHLINGS JACKSON FUND.

To the Editor of THE LANCET.

SIR,—May I correct an error in my letter which you published last week? The name of the artist who is designing the memorial medal should have been given as Mr. Percy Metcalfe. At the same time may I express the hope that any of your readers who may wish to subscribe to the memorial to Hughlings Jackson should send their subscriptions to me as soon as possible, as it is intended to close the list in the near future.—I am, Sir, yours faithfully,

WILFRED HARRIS.

56, Wimpole-street, W., Nov. 16th, 1931.

MEASLES ALMOST WHOLLY UNPREVENTABLE.

To the Editor of THE LANCET.

SIR,—In your annotation on Nov. 7th you express surprise that the *Times* should be able to tell its readers that measles "remains almost wholly unpreventable." I think that most medical officers of health controlling populous areas would agree that under the present circumstances practically all elementary school-children are infected by measles or are immune from measles after an epidemic has occurred in the school which they attend, also that once started on its course the measles epidemic spreads to all schools not recently infected; even Dr. S. P. Bedson, because he recognises that it is wholly unpreventable sooner or later, prefers a modified attack to prevention in robust children over two years of age, surely then, the *Times* is justified in its statement.

I was indeed pleased to read the article in the *Times* as, far from taking a pessimistic view, many doctors and parents hold the quite mistaken belief that by the exclusion of home contacts the spread of measles in schools can be controlled. Unfortunately this belief is fostered by the Board of Education, who whilst they say that school closure simply delays the spread of an epidemic, at the same time advise the exclusion of all home contacts from the infant department, and the over-sevens who have not had measles, evidently expecting to do by the exclusion of contacts what they say cannot be done by closure of the whole department. Also general practitioners seeing patients at home and quite ignorant of the course of the epidemic in the school light-heartedly exclude all home contacts. Naturally the man in the street except he is taught that measles is almost wholly unpreventable by such editorials, as to my joy appeared in the *Times*, is apt to think a medical officer of health is failing in his duty if he does not go in for wholesale contact exclusion, a custom which, whilst involving considerable administrative expense and loss of education, does on balance no good whatever. If this apparently dogmatic statement is true, then an immense amount of clerical work at present is useless—namely, the keeping of tabulated records of each school-child's history of measles so that one can readily determine on the occurrence of measles which children should and which should not be excluded from school. Even more important is the unnecessary loss of education caused by the exclusion of contacts. From the point of view of economy of both time and money, these rules as to exclusion, continued solely because of the mistaken belief that measles is preventable, should be rescinded.

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[1] Ueber Eugenik, Wien. klin. Woch., Jan. 2nd, 1931.

I need hardly say I am in hearty agreement with *delay* of the attack to 5 years of age, with the exclusion of under fives and delicate children from infected schools, also with the adoption of all possible means to render the actual attack as mild as possible.

I am, Sir, yours faithfully,

DUNCAN FORBES,

Nov. 13th, 1931. Medical Officer of Health, Brighton.

To the Editor of THE LANCET.

SIR,—In view of the approach of an anticipated epidemic of measles it may perhaps be of interest to your readers to know that the London Fever Hospital admits patients suffering from this disease, and that some 2000 such cases have received treatment here during the past ten years.

I am, Sir, yours faithfully,

H. J. SAY,

Secretary.

London Fever Hospital, Islington, N.1, Nov. 6th, 1931.

PSYCHOLOGICAL CLINICS FOR CHILDREN.

To the Editor of THE LANCET.

SIR,—In her letter of Nov. 7th (p. 1046) Dr. Margaret Lowenfeld makes reference to a pamphlet (Child Guidance by Team Work) published by the Child Guidance Council. She states that in that pamphlet the view is expressed that the Child Guidance Council limits the field of its activities in psychological medicine to behaviour disorders of children and juvenile delinquency, and she implies that the treatment of minor physical ailments and psychoneuroses of childhood is neglected. I should like to direct attention to pages 4 and 5 of the same pamphlet, where the scope of child guidance treatment is roughly outlined. There reference is made to "material conditions" (such as cause, instability, and fatigue), "improper diet," "physical disease even of a slight and chronic nature" and "direct treatment of mental symptoms"; besides advice on problems of intelligence, special tuition in cases of specific learning difficulty, and environmental adjustment. The only limitation stated or implied is that psycho-analysis is not employed.

I am, Sir, yours faithfully,

WILLIAM MOODIE, M.D., M.R.C.P.,

General Secretary, Child Guidance Council.

Buckingham Palace-gardens, S.W., Nov. 17th, 1931.

THE LÜBECK TRIAL.

(FROM OUR BERLIN CORRESPONDENT.)

(Continued from p. 1099.)

THE trial drags on and the public interest in it wanes. Witnesses are still being examined. Dr. Mögling classified the cases by their degree of infection, remarking that a slight reaction could not be regarded as an illness or injury. Asked whether a slight infection might not even have been of benefit by protecting the children against tuberculosis—a question creating so much stir among the parents of the deceased children that they had to be called to order—he replied that the different degree of infection could not be explained by the constitution of the children alone. He thought that possibly (although not probably) some of the children might become ill later.

At this stage the public prosecutor said that as a result of the evidence given he would now charge Prof. Deycke and Dr. Altstädt with manslaughter and gross negligence in the administration of B C G vaccine. Prof. Deycke's negligence lay in the fact that he had cultivated the B C G and had produced the emulsions without having previously ascertained that the B C G received from Paris was really innocuous. Dr. Altstädt's fault was that he had introduced the Calmette method without consulting previously the German Health Office and without asking the opinion of other medical men of experience. Dr. Altstädt's counsel said he was prepared to answer that charge, and that it would then become necessary to inquire whether in other countries a similar disaster had happened. Dr. Altstädt was then interrogated as to why he had not distributed the original directions for use sent to Lübeck along with the cultures by the Pasteur Institute. He replied that the parents had received a slip describing everything it was necessary for them to know. To the meeting of midwives he had said that the material contained bacilli which had of course been weakened, and he had compared the Calmette method with vaccination. He had instructed the midwives to inform the parents, but he had not insisted that they should say in every case that the emulsion was a kind of vaccine.

EDNAM MEMORIAL CRIPPLES' HOSPITAL.—On the afternoon of Sunday last, locally "Mayor's Sunday," the Prince of Wales opened the Rosemary Ednam Memorial extensions of the Cripples' Hospital at Hartshill, Stoke-on-Trent. The work done by the hospital was begun some 30 years ago by Millicent Duchess of Sutherland, the mother of Lady Ednam, who at the time of her death was raising money for the extensions. The new buildings have cost £20,000, the whole of which has been obtained. The main feature of the enlargement is an out-patients' block, with a large waiting-room, examination rooms, a record room, a massage room, and other facilities. There are also a theatre, an X ray department, and additional accommodation for the staff.

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS.

THE FUTURE OF THE SOCIAL SERVICES.

In the course of the debate on the Address in the House of Commons on Nov. 12th, Lieut.-Colonel FREMANTLE said the supporters of the Government would share the feeling expressed in the Amendment regretting that there was no mention of any intention of restoring and developing the social services. Those who were keen on the social services and supported the National Government at the election felt anxious on that subject, but they wished to approach the matter rather differently because they had been returned by an overwhelming majority of the electorate to give a free hand to the Government. He joined however with those who felt some anxiety as to the future of the social services and they would continue to feel that anxiety until they saw the Government's programme. The social services were of special value to the Conservative party. A traditional part of their platform, and one of the three fundamentals of Conservatism laid down by Disraeli, was the welfare of the working classes. The introduction of the idea of imposing State requirements on employers as embodied in the first Factory and Workshop Act was the work of a Conservative Government. The Labour Governments have done practically nothing effective in the matter. The Conservative party—and to a less extent the Liberal party—had been responsible for the long line of social legislation during the nineteenth century. They were faced with real difficulty at the present time in view of the economies that had been necessary. The first thing they had to do was to maintain the social services in a time of fluctuating money exchanges and price levels. They could not go ahead with social services in regard either to health or to education unless an income was coming into the homes of the people. They could not go ahead until the money position had been stabilised. Employment must be improved and the abuse of State funds must be stopped.

ECONOMY WITHOUT LOSS OF EFFICIENCY.

He believed that there was a great possibility of economy in social services without loss of efficiency, and he wished to impress that on the Government. First they must maintain the efficiency of institutions and personnel; secondly, they must make better use of the services which existed; thirdly, they must progress slowly but surely in making further advances. He wanted to feel sure that there would be a general continuance of the movement for better housing, but he hoped that the appalling waste which had been going on would be stopped. They must stop subsidising people who could build for themselves and focus attention on necessities, especially slum clearance and the building of houses at lower prices. They might definitely expect that the Town and Country Planning Bill would be passed into law with necessary amendments very soon. Administration of some institutions must be made less costly. An excellent report was recently made by the Board of Control on the subject of their permanent institutions, especially those for mental defectives. They had learned a good deal from foreign countries. The whole trend of medical and surgical science in recent times had been to show how much better they could get on with much cheaper and simpler material. Whatever they did they must keep their hands off research. That was one of the ways in which they could get better value for expenditure than anything else and the public money spent on it was a drop in the ocean. He hoped the scheme of veterinary research would be brought to fruition. An enormous amount could be done by publicity and education for the proper use of the services that existed. There had been tremendous development under the Local Government Act 1929, and he believed that it would be for the good of local administration if there was now a breathing space for a year or two. Instead of passing new legislation and setting up new officials they ought to get down to bedrock in the proper administration of the new Act. In that way they could make enormous progress without further expenditure. The institutions under the Ministry of Pensions were becoming obsolescent. He had long tried to urge Ministers to bring about some reasonable scheme by which they could get the different medical departments of State to work together so as to deal with that question in an efficient manner.

VOLUNTARY INSTITUTIONS.

Lastly, he wished to emphasise the great value of voluntary institutions in addition to official institutions. They should deal with the matter as common sense men. They needed both types of institution so far as they were efficient and useful. There were large spheres of effort which up to now had been most usefully covered by voluntary institutions and services; the hospitals and nursing services were two instances. They should develop them because they were a means of educating the public to make a proper use of all the facilities which were now available. The report issued recently by the Chief Medical Officer of the Board of Education stated how important it was to secure that extra value which came from self-help among the people. As long as they measured the amount of good done by the amount of money spent so long would they divert the people of all classes from the part they must play in order to make a proper use of the social services.

DRASTIC CONTROL OF IMPORTS:

EFFECT ON MEDICAL AND SURGICAL SUPPLIES.

ON Nov. 16th, in the House of Commons, Mr. RUNCIMAN (President of the Board of Trade), speaking in the course of the debate on the Address in reply to the Gracious Speech from the Throne, said that although the General Election was over the crisis still remained. There was no one however who was now charged with responsibility who was afraid of it; they were determined to tackle it in all its aspects with as much vigour as was open to them. He hoped that they would not allow the cause of economy to slip into the background, otherwise they would find their financial embarrassments would be greater rather than less. He hoped that hon. Members would be forbearing to Ministers who found that they must cut down departmental grants. Unless great efforts were made both inside and outside industry, by the captains of industry as well as by the Cabinet, they would find that the next year would be one of the worst in British history. The first practical question which arose was how our currency could retain its value. The only way to secure that was to see that our adverse trade balance did not increase. If we purchased and attempted to pay for an unlimited amount of imports we should certainly not be able to maintain the value of the pound.

There had been, during the last few weeks, anticipation abroad, as far as the Board of Trade could gather, that the imposition of Customs Duties might be part of the policy of the present Government at an early date, and clever folk abroad—and he had no doubt some clever men in this country—have been trying to get their goods into the country before they became subject to duty. In the opinion of the Government they had been doing this to an excessive extent. In Class III. (wholly or mainly manufactured articles), the most important of the categories in our trade and navigation returns, the importations two years ago, when trade was pretty active, amounted to £28,000,000 in a month; during the ten days of November now just closed they had run up to imports at the rate of £35,000,000, compared with £27,000,000 in October. If they went through the list of articles they would note some remarkable increases, sometimes as much as 80, 90, and 100 per cent. The Board of Trade had been entrusted by the Cabinet with the task of drawing up schemes of prohibitions or heavy duties for dealing with this situation, and of operating those schemes when they came into force. The Government had come to the conclusion that the best way of dealing with these abnormal importations at once was by giving the Board of Trade the power to issue an Order, which must come up within four weeks for the sanction of the House if it was in session, and if it was not in session, within four weeks after its reassembly. It was proposed to impose on articles to which this Act applied a duty not exceeding 100 per cent. of the value of the article. There was no use doing things by half. They must do it so effectively as to reduce the strain upon our purchasing capacity and without injury to any of our people or industries. These were emergency powers which would expire in six months. The Government were confining themselves to articles under Class III., because, as far as they could see, they would be able to make a large and effective selection without any detriment to either industry or the cost of living in this country. It was hoped that the Bill would be passed through all its stages by Thursday, Nov. 19th. The Government believed that it was necessary that it should receive the Royal Assent on Friday, Nov. 20th.

After some further debate the Address was agreed to without a division.

ARTICLES AFFECTED.

The Articles which come within the scope of Class III., and which may be dealt with under the powers conferred on the Board of Trade by the Bill, are as follows:

Coke and manufactured fuel; pottery, glass, abrasives, &c.; iron and steel and manufactures thereof; non-ferrous metals and manufactures thereof; cutlery, hardware, implements and instruments; electrical goods and apparatus; machinery; manufactures of wood and timber; cotton yarns and manufactures; woollen and worsted yarns and manufactures; silk and silk manufactures; manufactures of other textile materials; apparel; chemicals, drugs, dyes, and colours; oils, fats, and resins, manufactured; leather and manufactures thereof; paper and cardboard; vehicles (including locomotives, ships, and aircraft); rubber manufactures; miscellaneous articles wholly or mainly manufactured.

It is understood that the Orders will relate only to foreign goods, and not to goods coming from any other part of the British Empire.

HOUSE OF COMMONS.

WEDNESDAY, NOV. 11TH.

Prolongation of Insurance.

Mr. BUCHANAN asked the Prime Minister if the Government proposed to continue the present Act for the prolongation of insurance which expires this year.—Sir E. HILTON YOUNG replied: The answer is in the affirmative.

Mr. RHYS DAVIES asked the Minister of Health approximately the number of insured persons who had been able to maintain their membership of approved societies, to the last convenient date, through the operations of the Prolongation of Insurance Act, 1930.—Sir E. HILTON YOUNG replied: A reliable figure of the number of persons whose period of insurance has been extended under the provisions of the Prolongation of Insurance Act, 1930, will not be available until returns have been received from the 7000 approved societies and branches after the end of the current year.

THURSDAY, NOV. 12TH.

Imports of Tinned Skimmed Milk and Milk Powders.

Brig.-General CLIFTON BROWN asked the President of the Board of Trade the money value of tinned skimmed milk and *milk powders imported into this country during each of the* last three months for which information was available; and from what countries [illegible] had come.—Mr. RUNCIMAN replied: The total declared value of the imports into the United Kingdom of sweetened condensed milk separated or skimmed during August, September, and October, 1931, amounted to £225,500, £225,500 and £231,000, respectively, the principal countries of consignment being the Netherlands and Denmark. The value of the imports of milk powders during these months was £28,000, £33,800, and £51,000, respectively, the principal countries being the Netherlands, United States, New Zealand, and Canada. Similar information in respect of unsweetened condensed milk separated or skimmed is not available.

The Town and Country Planning Bill.

Mr. THOMAS WILLIAMS asked the Minister of Health whether it was proposed to reintroduce the Town and Country Planning Bill which passed committee stage during the late Parliament, and which received a large measure of support in this House and in the country. Lieut.-Colonel FREMANTLE also asked the Minister of Health if he would reintroduce the Town and Country Planning Bill.—Sir E. HILTON YOUNG replied: Careful consideration will be given to this matter with a view to an early decision as soon as circumstances permit.

Lieut.-Colonel FREMANTLE: Does the right hon. gentleman recognise that one of the clauses of the Finance Act which was passed made the assessment of properties dependent upon agreements which were included in Clause 20 of this Bill, and therefore a solution is required at once?

Sir E. HILTON YOUNG replied: Undoubtedly that will be taken into consideration on reviewing the question of the reintroduction of the Bill.

Highbury Hospital, Birmingham.

Mr. CROOKE asked the Minister of Pensions if he could make a statement as to the proposal to close down Highbury Hospital, Birmingham; and whether the disabled ex-Service *men who would be transferred to another* hospital would be given similar treatment and allowed similar privileges as were now afforded at Highbury Hospital.—Major TRYON replied: Owing to the steady decline in the number of patients in the Highbury Hospital—who now number less than 60—it has been decided, in agreement with the Hospital Committee, that the maintenance of this institution as a Ministry Hospital can no longer be justified, and it will accordingly be closed at the end of December. The number of men still requiring institutional treatment at the end of the year will be very small and they will be given treatment in a ministry or a civil hospital, as their cases require, and will enjoy the same privileges as are enjoyed by other pensioners undergoing treatment in those institutions.

Lieut.-Colonel FREMANTLE: Can the right hon. gentleman say whether any use is to be made of this hospital or whether it is to be shut down, and its value practically thrown away when so many hospitals have to be built?

Major TRYON: I should like to have notice of that question as the hospital is being run by a committee and not by the Ministry.

MONDAY, NOV. 16TH.

Coroner's Law and Viewing of Bodies.

Mr. EDWARDS asked the Home Secretary whether he was aware that two men were fatally injured at the Oakdale Colliery, Monmouthshire, on Friday, Oct. 16th; that on Monday 19th the inquest was held at Blackwood, Monmouthshire; that, as the Coroners Act laid down that the coroner who conducted the inquest must not go to the home to view the body if the deceased was resident in another coroner's district, the body of the man who resided at Oakdale was taken from his home to Blackwood, a distance of from two to three miles, to the place where the inquest was held, after which it was taken back again; and if he would take steps to have the law altered so as to prevent this sort of thing happening again.—Sir HERBERT SAMUEL replied: I have made inquiry into the matters to which the hon. Member refers and fully sympathise with the purpose which he has in view. The course which was taken was, as the hon. Member recognises, in accordance with the requirements of the law. It would be better, whenever more than one death unhappily occurs as the result of a single mining accident, if arrangements were made, as is frequently done, to intimate the fact to the coroner, so that the statutory requirement of viewing the bodies may be fulfilled before any are removed outside his jurisdiction.

Milk Industry and Foreign Milk Imports.

Sir CHARLES CAYZER asked the Minister of Agriculture if he had considered the representations submitted by the milk industry in favour of the increased restriction of the importation of foreign milk and milk products; and, if so, what action he proposed to take.—Sir JOHN GILMOUR replied: The representations referred to by my hon. friend are under consideration, but I am not yet in a position to make a statement on the subject.

Imported Milk and Cattle Disease.

Mr. HURD asked the Minister of Agriculture if he had considered the latest report of the Foot and Mouth Disease Research Committee as affecting the risks involved in the importation of dried milk and other milk products from foreign countries where disease was prevalent; and what conclusions he had reached.—Sir JOHN GILMOUR replied: I have considered the report referred to, and while it would appear from the laboratory experiments so far conducted that milk powder, in common with many other commodities, may be a potential carrier of foot-and-mouth disease, it has not been demonstrated that the virus survives in milk powder under trade conditions. The practicability of carrying out further tests under trade conditions is under consideration.

Smell in the House of Commons.

Captain CAZALET asked the First Commissioner of Works, whether he could explain the cause of the smell which penetrated into the chamber behind the Speaker's chair on Friday, Nov. 13th, and at other times; and if he would take steps to remedy it.—Mr. W. ORMSBY-GORE (First Commissioner of Works) replied: The smell referred to was caused by the clearing of a sump, rendered necessary by the recent heavy rain. Steps will be taken in future to do this work at a time when the House is not sitting.

TUESDAY, NOV. 17TH.

Salaries of Local Government Officials.

Mr. MCENTEE asked the Minister of Health the number of local authorities that had adopted the Government's recommendation to economise by reducing the salaries of officials.—Sir E. HILTON YOUNG replied: Returns have not been obtained by the Government and I am, therefore, not able to furnish the desired figures, but information which has been received indicates that salaries have been reduced by a large number of local authorities.

National Health Insurance Policy.

Mr. RHYS DAVIES asked the Minister of Health whether the issue of Circular A.S. 282 to approved societies was an indication of a change of policy in his department to intervene in the domestic administration of approved societies; and why officers of his department were now to be instructed to interfere in the internal affairs of approved societies when this procedure had never before been adopted.—Sir E. HILTON YOUNG replied: The hon. Member appears to be under a misapprehension as to the purpose of the Circular. It has always been the policy of my Department to give help and guidance to approved societies where necessary on matters relating to their administration and for this purpose to make use of the services of its officers. The Circular in question did not indicate any departure from this policy.

Births, Marriages, and Deaths

BIRTHS.

ORMACK.—At "Mossgiel," Felpham, Sussex, on Oct. 14th, 1931, to Dorothy, wife of Lieut.-Colonel H. S. Cormack, I.M.S.—a son.

OUTHWAITE.—On Nov. 15th at Harley-street, W., the wife of Dr. A. H. Douthwaite, of a daughter.

AITLAND.—On Nov. 8th, the wife of Charles Titterton Maitland, M.D., Beechcroft-avenue, N.W., of a son.

ELBY.—On Nov. 11th, in London, the wife of Dr. F. L. G. Selby, West African Medical Staff, Nigeria, of a son.

MARRIAGES.

ICHARDSON—HORNIBROOK.—On Nov. 7th at St. James's Church, Gerrards Cross, Group Capt. A. V. J. Richardson, O.B.E., R.A.F., M.B., D.P.H., to Eileen Mary, daughter of W. H. Hornibrook, F.R.C.S., L.R.C.P., D.P.H. Irel., and Mrs. Hornibrook, of The Holt, Gerrards Cross.

DEATHS.

ARKE.—On Nov. 8th, at British Military Hospital, Nasirabad, Rajputana, India, Lieut. Eric G. C. Darke, Royal Army Medical Corps, aged 26.

CARTHY.—On Nov. 10th, at a nursing home, Llandudno, Herbert John (Jack) McCarthy, M.R.C.S., L.R.C.P.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages and Deaths.

MEDICAL NEWS

Royal Society of Medicine: Annual Dinner.

Dr. T. Watts Eden presided at the annual dinner of the Society, held on Nov. 12th, at the May Fair Hotel. In proposing "The Royal Society of Medicine," Sir Donald Maclean, president of the Board of Education, remarked that medicine owed as much to the Greeks as his own profession did to the Romans, adding a regret that ancient medical science had not enjoyed the coördinative genius of a John MacAlister. He stressed the national value of the system of school hygiene which had been built up in connexion with public education during the last 25 years. He hoped he would never live to see the day when the voluntary practice of medicine was lessened, but he called for much greater coöperation between State departments and such organisations as the Royal Society of Medicine. The Society showed what could be done by friendly coöperation; its members had no difficulty with dumping, and he welcomed them all as Free Traders, accepting any advance in medical knowledge, no matter whence it came. *Speaking officially*, he said that if there was anything the Board of Education could do in the way of friendly coördination it should be done. In reply, Dr. Eden said that the education of medical students was suffering from a type of depression common to all heavy industries. The continually increasing scope of the curriculum had added largely to working expenses while leaving revenue practically unchanged. Unlike that of young ladies, the education of a doctor was never finished, and the Society was a great organisation by means of which doctors were carrying on their own education. Its interests were catholic, not sectarian, and its real objective was medicine as a whole. It supplied the corrective to the modern tendency of medicine to become split into disconnected units. During the preceding year *two sections* had given evidence of vitality by going into voluntary liquidation and being born again as sections of physical medicine and of radiology. The toast of "The Guests" was proposed by Mr. W. Girling Ball, who congratulated Sir Donald Maclean on his triumph in the recent election, welcomed the Society's old friend, Sir William Bragg, O.M., and Nobel prizeman in this year of Faraday's *centenary* celebration, and mentioned that Lord Dawson, immediate past-president, was donor of the new presidential robe, designed from an old illustration of the robe of a doctor of medicine of Padua in the eighteenth century. Sir William Bragg, in reply, enumerated some of the contributions of physical science to public health, particularly in investigating the influence of noise, bad lighting, and atmospheric pollution. Knowledge so gained might be used for the *design* of highly complicated instruments of measurement to be used as deterrents. But the results of scientific research were better applied to prevention than to prosecution, to the design of streets, buildings, and rooms in such ways as to reduce unnecessary noise, glare, or pollution. The more such knowledge was available the less frequent would be the occasions for offence. Among the guests were also Sir George Buchanan, Sir Farquhar Buzzard, Colonel F. E. Fremantle, M.P., Sir Ernest Graham-Little, M.P., Sir Gowland Hopkins, Sir Ewen Maclean, Prof. J. M. Woodburn Morison, Mr. Herbert Tilley, and Dr. W. G. Willoughby.

British Hospitals Association.

The annual conference will be held at Liverpool in June next.

University of London Medical Graduates Society.

The fourth extra-metropolitan dinner of the society was held in Bristol on Nov. 13th. Sir John Rose Bradford, president of the society, took the chair, and 30 members attended. The next meeting of the society will be held on Thursday, Jan. 21st, 1932, from 4.0 to 6.0 P.M. at the London School of Hygiene and Tropical Medicine. Applications for membership may be sent *to the hon.* secretaries at 11, Chandos-street, W.1.

Medical Women's Federation.

The autumn council *meeting* of the Federation was held at the Medical Institute, Liverpool, on Nov. 6th, with a full agenda of business. A resolution was passed that medical women examiners should be available for those women who desired them for the necessary medical examination required for divorce and nullity proceedings. The council considered a report by the International Labour Office on "Women's Work," and protested against some of its inaccurate *statements* and statistics. Delegates reported on the recent meeting of the International Medical Women's Association held in Vienna (see THE LANCET, Oct. 24th, p. 929). The annual general meeting was appointed to be held in Oxford in May next. In the evening Dr. Mary Deacon presided at a dinner at [illegible] Hotel.

British Science Guild.

The seventh Norman Lockyer lecture will be given by Dr. H. H. Dale, secretary of the Royal Society, on Tuesday, Nov. 24th, at 4.30 P.M., in the Goldsmiths' Hall, London. The subject will be Biology and Civilisation.

British Serbian Units.

The tenth annual reunion dinner of the British Serbian Units Branch of the British Legion and of friends of Serbia will be held at the Lysbeth Hall, Soho-square, London, W.1, on Saturday, Dec. 5th, at 7 for 7.20 P.M. Tickets may be had from Miss Marx, 24, Melcombe-court, Dorset-square, London, N.W.1.

Medico-Legal Society.

At a meeting of this Society at 11, Chandos-street, W., at 8.30 P.M., on Thursday, Nov. 26th, Dr. Emanuel Miller will read a paper on the Social Aspects of Juvenile Delinquency.

The annual dinner has been postponed indefinitely.

Royal Sanitary Institute.

A sessional meeting of the institute will be held in the Town Hall, Sheffield, on Friday, Nov. 27th at 3 P.M., when a discussion on Cerebro-spinal Fever will be opened by Dr. H. J. Egerton Hutchins Williams. It will be followed at 5.30 P.M. by a discussion on Regional Smoke Abatement.

National Birth Control Association.

The first annual meeting of this association (with which is incorporated the Birth Control Investigation Committee) will be held at the Caxton Hall, Westminster, at 4.15 P.M., on Monday, Nov. 23rd, with Sir Thomas Horder in the chair. At 5 P.M., after the business meeting, Prof. K. J. Laski will speak on Birth Control and the Future of Democratic Society. Invitation cards may be had from the secretary at 26, Eccleston-street, London, S.W.1.

British Social Hygiene Council.

A Social Hygiene Congress is being organised in Sydney in April, 1932, by the Racial Hygiene Association of New South Wales, an organisation affiliated to the British Social Hygiene Council. The Council has been invited to nominate delegates to the Congress and to arrange for the contribution of papers, and the Executive Committee would like to learn the names of any members of the Council who will be present in Sydney at the time, and who would be willing to assist in the proceedings. For economical reasons the autumn meeting of the Council will not be held, so that communications should be made to the Executive Committee of the Council at Carteret House, London. S.W. 1.

Association of Bio-Physical Assistants.

At a representative meeting of biophysical assistants held in London on Nov. 4th an Association of Registered Bio-Physical Assistants was formed. Its objects are (1) to advance the study and practice of physical methods and make available to the public greater facilities for such methods through the medium of registered workers; (2) to promote the welfare of biophysical assistants in their professional capacity; (3) to coöperate as required with other recognised bodies for the achievement of the above ends. The acting organising secretary is Mrs. Vaughan Cowell, 30B, Wimpole-street, W.1.

Appointments

ILIFF, D. GRAHAM, M.R.C.S., L.R.C.P. Lond., has been appointed Resident Medical Officer at the Minehead and West Somerset Hospital.

MACKAY, JANET M., M.B., Ch.B. Edin., D.P.H., Asst. County M.O. for Wiltshire.

MALPAS, P., M.B., Ch.M. Liverp., F.R.C.S. Eng., Honorary Assistant Surgeon to Oxford-street Hospital, Liverpool.

Certifying Surgeons under the Factory and Workshop Acts: CARMICHAEL, L. G., M.B., Ch.B. Edin. (Galloway, Kirkcudbright); WEBB, P. J., M.B., Ch.B. N.U.I., D.P.H., Manchester North.

Vacancies

For further information refer to the Advertisement columns.

Aberdeen City Fever Hospital.—Jun. Res. M.O. £100.

Albert Dock Hospital, Connaught-road, E.—Res. M.O. At rate of £110.

Altrincham General Hospital.—Jun. H.S. At rate of £120.

Archway Hospital, Archway-road, Highgate, N.—Res. Med. Supt. £1000.

Bedford County Hospital.—1st H.S. At rate of £165.

Bethnal Green Hospital, Cambridge-road, E.—Res. Med. Supt. £1100

Birmingham, Little Bromwich Isolation Hospital.—Med. Sup £1100.

Bolton Infirmary and Dispensary.—Asst. Res. M.O. £200.

Brighton, Royal Alexandra Hospital for Sick Children. £100.

Brighton, Royal Sussex County Hospital.—Jun. Asst. Patholog £300.

Cancer Hospital, Fulham-road, S.W.—H.S. At rate of £1

Canterbury, Kent and Canterbury Hospital.—2 H.S.'s. E at rate of £125.

Chelsea Hospital for Women, Arthur-street, S.W.—Jun. H.S. rate of £100.

City of London Hospital for Diseases of Heart and Lungs, Vic Park, E.—Res. M.O. £250. Also H.P. At rate of £1

City of London Maternity Hospital, City-road, E.C.—Asst. R M.O. At rate of £80.

Croydon General Hospital.—Res. M.O. £200.

Dewsbury and District General Infirmary.—Sen. H.S. £2

Doncaster Royal Infirmary.—H.S. to Cas. Dept. At rate £175.

Dreadnought Hospital, Greenwich.—H.P. and H.S. Each rate of £110.

East Ham Memorial Hospital, Shrewsbury-road, E.—Phys. Skin Dept.

East London Hospital for Children, Shadwell, E.—Res. M £200.

Elizabeth Garrett Anderson Hospital, Euston-road.—H.P. Obs Asst. and 2 H.S.'s. All at rate of £50. Also Clin. A

Hampstead General and N.W. London Hospital, Haverstock H N.W.—H.S. Also Cas. M.O. Each at rate of £100.

Hospital for Consumption and Diseases of the Chest, Bromp S.W.—Surgeon to Ear, Nose, and Throat Dept.

Hospital for Epilepsy and Paralysis, Maida Vale, W.—C Asst. for Ear, Nose and Throat Dept.

Hospital for Sick Children, Great Ormond-street, W.C.—H.P. a H.S. Each at rate of £100.

Ilford, King George Hospital.—Half-time Pathologist. rate of £350.

Jersey General Hospital and Poor-law Infirmary.—Res. M £200.

Khartoum, Wellcome Tropical Research Laboratories.—Bacte logist. £E.660.

King Edward Memorial Hospital, Ealing.—Hon. Dental Surg

Lister Institute of Preventive Medicine, Chelsea Bridge-road, S.W. Research Fellowship in Bacteriology. £500.

Liverpool Royal Children's Hospital.—Hon. Surgeon.

London Homœopathic Hospital, Great Ormond-street, W.C.—R M.O. £100.

London University.—Geoffrey Duveen Travelling Studentship Oto-Rhino-Laryngology. £450.

Manchester Royal Infirmary.—Asst. Res. M.O. At rate of £1

Manchester Royal Infirmary, Central Branch, Roby-stre H.S. At rate of £100.

Manchester, St. Mary's Hospital.—H.S. at Whitworth P Branch. At rate of £50.

Mount Vernon Hospital, Northwood, Middlesex.—Res. M £250.

National Hospital, Queen-square, W.C.—Hon. Asst. Radiolo

Newark General Hospital.—Res. H.S. £175.

Newcastle General Hospital.—Part-time Med. Reg. and S Reg. Each at rate of £250.

New Zealand, University of Otago and Dunedin Hospit Sen. Res. Surg. and Medical Officers. Each £500.

Oldham, Boundary Park Municipal Hospital.—Res. As M.O. At rate of £200.

Oxford, Radcliffe Infirmary and County Hospital.—Hon. Ph Hon. Asst. Phys., and Hon. Asst. Radiologist.

Plymouth Central Hospital.—Res. H.S. At rate of £150.

Plymouth, South Devon and East Cornwall Hospital.—Rad Officer. £600.

Preston, Biddulph Grange Orthopædic Hospital.—Sen. and Ja H.S. At rate of £250 and £150 respectively.

Prison Medical Service.—M.O. £350.

Queen Charlotte's Maternity Hospital, Marylebone-road, N.W. Res. Anæsthetist and Asst. Res. M.O. At rate of £100 an £80 respectively.

Queen's Hospital for Children, Hackney-road, E.—H.P. an Cas. O. Each at rate of £100.

Rotherham Hospital.—H.P. £180.

Royal Free Hospital, Gray's Inn-road, W.C.—Surg. Res. £100. Res. Cas. O. £150. District Obstetric Asst. Each at rate of £1 Reg. and Gynæcological Reg. Also H.P.'s and H.S.'s to Special Depts.

Royal National Orthopædic Hospital, 234, Great Portland-str W.—Med. Registrar. £150. Also Hon. Anæsthetist.

St. Thomas's Hospital Medical School, S.E.—Professor for the University Chair of Medicine. £2000.

Salisbury, General Infirmary.—Two H.S.'s. Each £150.

Salop, Cheshire Joint Sanatorium, Market Drayton.—H.P. £2

Sheffield University.—Chair of Pathology.

Stoke-on-Trent, North Staffordshire Royal Infirmary.—Orth pædic Surgeon. £500. Also Asst. H.P. £125.

Taunton and Somerset Hospital.—M.O. At rate of £100.

West London Hospital, Hammersmith-road, W.—H.P. and H.S to Special Depts. Each at rate of £100.

Westminster Hospital, Broad Sanctuary, S.W.—H.S. At rat of £102.

Wigan, Royal Albert Infirmary and Dispensary.—Res. Med. a Surg. O. and Reg. £250.

Willesden General Hospital, N.W.—Clin. Assts. for Out-patie Dept.

Wrexham and East Denbighshire War Memorial Hospital.— Two Res. H.S.'s. Each at rate of £150.

York County Hospital.—H.S. to Ear, Eye, Nose, and Thro Dept. £150.

The Chief Inspector of Factories announces vacant appoint ments for Certifying Factory Surgeons at Richmond (Yorks) and Burghead (Moray).

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches later than the first post on Wednesday morning.

SOCIETIES.

OYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY, Nov. 23rd.—8 P.M., ODONTOLOGY. Casual Communications. Mr. J. G. Turner: Backward Movement of Lower First Molars; Difficulties of Extracting Retained and Unerupted Teeth. Paper. Prof. L. S. Dudgeon: Vincent's Angina and Allied Affections of Mouth and Throat.

TUESDAY.—5 P.M., MEDICINE. Discussion: Nervous Dyspepsia. Speakers: Dr. Robert Hutchison, Dr. T. A. Ross, Dr. H. Bedingfield, and others.

WEDNESDAY.—5 P.M., COMPARATIVE MEDICINE. Discussion: Active Immunisation in Virus Disease. Opener: Dr. C. H. Andrewes, followed by Prof. W. J. Tulloch, Major G. W. Dunkin, Dr. S. P. Bedson, Mr. R. E. Glover, and others.

THURSDAY.—8.30 P.M., UROLOGY. A Clinical-Pathological meeting will be held.

FRIDAY.—5 P.M., DISEASE IN CHILDREN. (Cases at 4.30 P.M.). 8 P.M., EPIDEMIOLOGY AND STATE MEDICINE. Paper: Dr. E. W. Goodall: William Budd, a Forgotten Epidemiologist.

EDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY, Nov. 23rd.—8.30 P.M., Discussion on the Methods of Determining Liver Function and Their Value, to be introduced by Sir Humphry Rolleston and Prof. E. C. Dodds.

EDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES, 11, Chandos-street, Cavendish-square, W.

FRIDAY, Nov. 27th.—8.30 P.M., Dr. G. M. Findlay: Chemotherapy: New Remedies in the Treatment of Syphilis. A discussion will follow.

RTH-WESTERN TUBERCULOSIS SOCIETY

THURSDAY, Nov. 26th.—4.15 P.M. (in the Anatomy Theatre, Manchester Medical School).—Mr. H. Morriston Davies: Surgery in Pulmonary Tuberculosis.

YAL MEDICO-PSYCHOLOGICAL ASSOCIATION.

TUESDAY, Nov. 24th.—2 P.M. (at the B.M.A. House, Tavistock-square, W.C.), Quarterly General Meeting. 3 P.M., Sir Hubert Bond: Testimonied in his Own Bringingsforth (Maudsley lecture).

DICO-LEGAL SOCIETY.

THURSDAY, Nov. 26th.—8.30 P.M. (at 11, Chandos-street, W.), Dr. Emanuel Miller: Social Aspects of Juvenile Delinquency.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

LLOWSHIP OF MEDICINE AND POST-GRADUATE EDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Nov. 23rd, to SATURDAY, Nov. 28th.—ST. MARK'S HOSPITAL, City-road, E.C. An all-day course in Proctology—demonstrations, lectures, operations.—CITY OF LONDON HOSPITAL FOR DISEASES OF THE HEART AND LUNGS, Victoria Park, E. Special post-graduate course in Diseases of the Chest. All day.—ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, Broad-street, W.C. Post-graduate Course in Ophthalmology. Clinical instruction every afternoon, 2.30 to 4.30 P.M. Special demonstrations at 5 P.M. on Mon., Wed., and Thurs.—MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square. Free lecture on Wed., at 4 P.M., by Sir Henry Gauvain on Bone and Joint Tuberculosis.—In connexion with the M.R.C.P. evening lectures: on Mon., Dr. W. J. Adie: Diseases of the Nervous System (2) at 8.30 P.M.—At 10, Bedford-square, W.C., at 8.30 P.M., on Wed. and Frid., Dr. Knyvett Gordon on Anæmia and Leukæmia, illustrated by epidiascope, followed by a laboratory demonstration.—ST. PAUL'S HOSPITAL, Endell-street, W.C. Wed., at 4.30 P.M., Cystoscopic demonstration by Mr. W. K. Irwin. No fee for attendance.—HOSPITAL FOR CONSUMPTION, Brompton, S.W. Mon., at 3 P.M., demonstration in the X ray Department by Dr. Stanley Melville. No fee for attendance.—LONDON LOCK HOSPITAL, 91, Dean-street, W. Post-graduate Course in Venereal Disease. Every afternoon.—Further particulars from the Fellowship of Medicine.

TIONAL HOSPITAL, Queen-square, W.C.

MONDAY, Nov. 23rd.—2 P.M., Dr. Riddoch: Out-patient Clinic. 3.30 P.M., Dr. Kinnier Wilson: Cerebral Tumours (2).

TUESDAY.—2 P.M., Dr. Walshe: Out-patient Clinic. 3.30 P.M., Dr. Critchley: The Parkinsonian Syndrome (2).

WEDNESDAY.—2 P.M., Dr. Martin: Out-patient Clinic.

THURSDAY.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Mr. Julian Taylor: Head Injuries (2).

FRIDAY.—2 P.M., Dr. Adie: Out-patient Clinic. 3.30 P.M., Dr. Collier: Nervous Complications of Diabetes and Nephritis.

JOHN'S HOSPITAL DERMATOLOGICAL SOCIETY.

WEDNESDAY, Nov. 25th.—4.15 P.M. (at St. John's Hospital, 49, Leicester-square, W.C.), Clinical Cases with special reference to the paper by Dr. R. T. Brain: Radon as a Substitute for Radium in Dermatology.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

MONDAY, Nov. 23rd.—10 A.M., Gynæcological Wards; Genito-urinary Operations; Skin Department. 11 A.M., Surgical Wards. 2 P.M., Surgical Wards; Medical, Surgical, Eye, and Gynæcological Out-patients.

TUESDAY.—9.30 A.M., Operations. 10 A.M., Medical Ward Demonstration; Dental Department. 11 A.M., Throat Operations. 11.30 A.M., Surgical Demonstration. 2 P.M., Operations; Medical, Surgical, and Throat Out-patients.

WEDNESDAY.—10 A.M., Medical Wards; Children's Medical Out-patients. 2 P.M., Medical, Surgical, and Eye Out-patients. 2.30 P.M., Gynæcological Operations. 4.45 P.M., Venereal Diseases Demonstration.

THURSDAY.—10 A.M., Neurological Department. 11.30 A.M., Fracture Demonstration. 2 P.M., Medical, Surgical, Eye, and Genito-urinary Out-patients. 2.30 P.M., Operations.

FRIDAY.—10 A.M., Medical Wards, Skin Department, Dental Department. 2 P.M., Medical, Surgical, and Throat Out-patients. 2.30 P.M., Operations.

SATURDAY.—9 A.M., Throat Operations. 10 A.M., Medical Wards. Surgical Out-patients: Children's Medical Out-patients.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL, University-street, W.C.

TUESDAY, Nov. 24th.—5.15 P.M., Dr. R. T. Grant: Pathology of Endocarditis.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL, Denmark-hill, S.E.

THURSDAY, Nov. 26th.—9 P.M., Dr. M. S. Thomson: Skin Diseases of Childhood.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.

TUESDAY, Nov. 24th.—3.15 P.M., Mr. Barrington-Ward: After-treatment of Abdominal Operations.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James' Hospital, Ouseley-road, Balham, S.W.

WEDNESDAY, Nov. 25th.—4 P.M., Dr. C. E. Lakin: Demonstration of Medical Cases.

ST. MARK'S HOSPITAL, City-road, E.C.

THURSDAY, Nov. 26th.—4.30 P.M., Sir Charles Gordon-Watson: Diagnosis and Treatment of Carcinoma of the Colon.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.

WEDNESDAY, Nov. 25th.—4 P.M., Dr. H. C. Visick: Anæsthetics in Practice.

HOSPITAL FOR EPILEPSY AND PARALYSIS, Maida Vale, W.

THURSDAY, Nov. 26th.—3 P.M., Clinical meeting for medical practitioners. Dr. W. G. Wyllie: Diplegia in Childhood.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY, Nov. 24th.—5 P.M., Dr. H. W. Barber: Immunity and Anaphylaxis.

THURSDAY.—5 P.M., Dr. W. N. Goldsmith: Pigmentation of the Skin.

CHARING CROSS HOSPITAL MEDICAL SCHOOL.

THURSDAY, Nov. 26th.—4.30 P.M., Sir Almroth Wright: Immunity: The Old Doctrine and the New. (Huxley Lecture.)

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY, Nov. 27th.—4 P.M., Mr. N. Rankin: Acute Affections of the Pharynx.

NATIONAL COUNCIL FOR MENTAL HYGIENE.

THURSDAY, Nov. 26th.—5.15 P.M. (at 11, Chandos-street, Cavendish-square, W.), Dr. Doris Odlum: Marriage and Parenthood.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.

WEDNESDAY, Nov. 25th.—4 P.M., Mr. David Lees: Venereal Diseases in City Life.

THURSDAY.—4 P.M., Mrs. Marie C. Stopes, D.Sc.: Some Practical Points on Contraceptive Technique.

ANCOATS HOSPITAL, Manchester.

THURSDAY, Nov. 26th.—11 A.M., Mr. E. E. Hughes: Clinical Demonstration. 4.15 P.M., Dr. N. Kletz: Affections of the Colon.

MANCHESTER ROYAL INFIRMARY.

TUESDAY, Nov. 24th.—4.15 P.M., Dr. D. E. Core: Functional Nervous Disorders in Childhood.

FRIDAY.—4.15 P.M., Mr. A. H. Burgess: Demonstration of Surgical Cases.

MANCHESTER VICTORIA MEMORIAL JEWISH HOSPITAL, Elizabeth-street.

WEDNESDAY, Nov. 25th.—4.30 P.M., Mr. F. H. Scotson: The Investigation of a Renal Case. (With demonstration.)

MANCHESTER HOSPITAL FOR CONSUMPTION, Hardman-street, Deansgate.

WEDNESDAY, Nov. 25th.—4.30 P.M., Dr. G. V. Ashcroft: Cough.

UNIVERSITY OF SHEFFIELD.

FRIDAY, Nov. 27th.—3.30 P.M. (at the Royal Infirmary), Dr. R. Platt: Asthma.

ROYAL MATERNITY AND WOMEN'S HOSPITAL, Glasgow.

WEDNESDAY, Nov. 25th.—4.15 P.M., Prof. J. M. Munro Kerr: Obstetrical Cases.

THE FACULTY HALL, St. Vincent-street, Glasgow.

TUESDAY, Nov. 24th.—4 P.M., Dr. A. J. Ballantyne: Diagnostic Problems in Ophthalmology.

NOTES, COMMENTS, AND ABSTRACTS

A FORTNIGHT IN NORTH AMERICA.

BY A. LAWRENCE ABEL, M.S., F.R.C.S.,

SURGEON TO THE PRINCESS BEATRICE HOSPITAL AND THE GORDON HOSPITAL FOR RECTAL DISEASES; ASSISTANT SURGEON TO THE CANCER HOSPITAL.

THE Inter-State Postgraduate Medical Association of North America is the largest post-graduate institution of its kind in the world. Each year it holds meetings in various parts of the United States, and its annual congress, held in one of the largest cities, is attended by over 5000 medical men of all grades of the profession and from all parts of the United States and Canada. I was much honoured, therefore, to receive an invitation to attend this meeting of the International Assembly, and to speak on the Modern Treatment of Cancer of the Rectum and show my cinematograph film of the abdomino-perineal (Miles') operation.

This invitation, when accepted, was quickly followed by others. In New York I spoke on Gas Oxygen Anæsthesia from the Surgeon's Viewpoint, to the Anæsthetic Section of the American College of Surgeons. The Secretary-General of the Anæsthetic Association, Dr. F. H. McMechan, and his wife, are both well known to anæsthetists and surgeons in this country. Although almost a complete invalid Dr. McMechan has organised the modern anæsthetists of the United States into an active body of men and women, most of whom are enthusiastic workers with gas and oxygen. Throughout the United States anæsthetics are mainly administered by nurses, but thanks to Dr. McMechan and his associates the medical profession are taking a keener interest in anæsthesia and the many problems associated with it, and indiscriminate use of chloroform and ether is gradually giving place to the safer gas-and-oxygen methods.

While in New York I was allowed to attend the American College of Surgeons meeting already reported in these columns.[1] Every hospital in New York had arranged clinics and operating sessions, and throughout the day addresses were delivered by men of world-wide reputation. A large number of talking and silent medical films were shown.

An over-night trip carried me to Boston, where I was the guest of Dr. Edwin Parker Hayden. He took me over the Massachusetts General Hospital and I spoke in the amphitheatre where ether was first used as a general anæsthetic. Some 200 members and associates of the staff attended. I was then taken round the city and shown the new buildings of the Harvard University, laid out in beautiful surroundings, as separate colleges on the lines of Oxford and Cambridge. From here an 18 hours' journey along the north shores of Lake Erie took me to Chicago—where I saw no sign of machine guns or racketeers—and two hours north of Chicago I reached my real destination, Milwaukee, Wisconsin, where the annual meeting of the Inter-State Post-Graduate Assembly was held in the Auditorium from Oct. 19th to 23rd.

Meeting at Milwaukee.

Milwaukee is a typical city of the Middle West. It is a large, clean, manufacturing town of nearly one million inhabitants, surrounded by the wooded state of Wisconsin, with innumerable scattered lakes. The Auditorium is comparable to Olympia. The part of the ground floor devoted to the congress seats over 10,000 people, the remainder accommodating ante-rooms for speakers, patients, officials, and reporters. The basement was devoted to an exhibition of drugs, medical and surgical appliances, and the like. Side rooms were occupied by representatives of various universities, hospitals, and clinics, and selections of their work were demonstrated by pictures, pathological specimens, radiograms, lantern slides, and cinematograph films. These were on view continuously and were changed daily; in themselves they formed a symposium of medical, surgical, and special methods of diagnosis and treatment.

The meeting provided the most concentrated post-graduate instruction that it is possible to arrange in five days. The sessions began at 7.30 A.M. with "diagnostic clinics" and a large audience attended even at that early hour. Each speaker had three or four cases for exhibition on the platform. By means of a microphone and loud-speakers he described the history, detailed the physical examination, and then proceeded to discuss the diagnosis and treatment of each case. The speakers were well-known professors and each was allowed from 35 to 45 minutes. As they mostly came from long distances they had had no previous chance of examining the patient, and the clinics proved highly successful and instructive. These diagnostic clinics continued until about 11 o'clock. The remainder of the day was devoted to addresses, each day or part of a day being devoted to a consideration of a particular system or subject. The day's work ended about 10 P.M.

Lunch and dinner intermissions were from 12 to 1 and 6 to 7 P.M. respectively, and each session included half an hour's interval for the viewing of exhibits. Between addresses the audience rose in their places for a moment or two, sometimes singing a song, such as "Swanee River" or "Marching thro' Georgia."

In all there were 110 clinics and addresses. Of these, the following contributed: Mayo Clinic, 19; Lahey Clinic and Harvard Medical School, Boston, 12; Crile's Cleveland Clinic, 9; New York, 9; Johns Hopkins Hospital, Baltimore, 7; Chicago, 6; Toronto, 4; Montreal, 3; London, England, 1.

Both Dr. William and Dr. Charles Mayo addressed the congress on general lines. Of their associates Dr. Waltman Walters, associate professor of surgery at the Mayo Clinic, emphasised the benefits of partial gastrectomy for gastric ulcers which did not respond quickly to medical treatment. He favoured pyloroplasty as a useful alternative to gastro-enterostomy in duodenal ulcer. Dr. Fred W. Rankin, associate professor of surgery at the Mayo Clinic, advocated lumbar sympathectomy for Hirschsprung's disease and also reported a high rate of cure in radical operations for carcinoma of the stomach. Dr. Paul A. O'Leary, professor of dermatology at the Mayo Clinic, emphasised the need for prolonged treatment of syphilis by heavy metals. Dr. Frank H. Lahey, director of the Lahey Clinic, Boston, emphasised the need for early removal of the diseased gall-bladder; he also advised large doses of iodine before and after thyroidectomy, which should be done early for cases of thyroiditis of all types. Dr. Edmond M. Eberts, professor of surgery at Montreal, gave an account of his researches on Paget's disease of the breast, and held two highly successful surgical diagnostic clinics. Canada was also represented by Dr. F. N. G. Starr, professor of surgery at Toronto, who emphasised the need for radical surgery in cancer of the stomach. Dr. George W. Crile, of Cleveland, spoke of the relationship between the thyroid and adrenal glands, hyperacidity and peptic ulcer, and the relationship between neuro-circulatory asthenia and diabetes. He detailed his technique of denervation of the adrenal glands and its curative effect upon soldier's heart, peptic ulcer and hyperacidity, and its influence over diabetes. He also stated that as a result of mixing cerebral lipoids with synthetic proteins living cells had been formed from non-living matter. I was the only European representative. I outlined the pathology of the spread of cancer of the rectum and emphasised the need for the most thorough radical abdomino-perineal operation. I also demonstrated the operation and after-treatment by means of my cinematograph film, reporting an immediate mortality of less than 8 per cent. and quoting Mr. Ernest Miles's figures showing a 70 per cent. five-years' cure rate.

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[1] THE LANCET, Nov. 7th, p. 1037.

Side Shows.

While the doctors were attending the congress the wives were catered for by an energetic ladies' committee. Trips were arranged to places of interest in the surrounding country, convalescent homes were visited, and the mass-production kitchens of local hospitals were thrown open for inspection. Perhaps the most interesting visit was to A. O. Smith's factory, where, apart from other activities, are made the chassis of all American motor-cars, except Fords. At one end of the shop a plain sheet of steel is fed on to a machine and at the other a completely assembled and painted motor chassis makes its appearance. The whole process can be watched in every detail from a raised balcony. Attached to this gigantic works is a new research department built entirely of steel and glass. This enormous building receives no outside air through the windows, the whole structure being artificially ventilated. No direct factory work is carried out here, but a staff of 48 qualified scientists are engaged purely in research into the properties of metals, wood, paint, and so on.

After being interviewed by reporters, my first public function in Milwaukee was to speak to the Rotary Club, at a luncheon. Here I had an enthusiastic reception from some 400 members, who expected me to know all about the political and financial situation in Europe, to give my views on the depression, to predict an optimistic future for the world at large, and North America and England in particular. Early that evening I had to broadcast similar views, statements concerning the diagnosis and treatment of cancer, and information about the general work of the Post-Graduate Assembly. Later that evening the Surgical Club of Milwaukee gave a hilarious dinner to the surgical visitors, including Dr. Charles Mayo.

The Mayo Clinic.

"Dr. Charlie," as everyone calls him, took me with him overnight on the Wednesday to Rochester, Minnesota, where we arrived at 7 o'clock on Thursday morning. He took me in his car to his beautiful house, some four miles out of Rochester. He lives on a slight elevation, looking out over the beautiful Minnesota hills. Through the valley in his park runs a tributary of the Mississippi river, with a number of islands scattered about united by small suspension bridges. Every vivid autumn tint of red and brown and gold on the trees made a never-to-be-forgotten picture as seen from the roof of his house. After breakfast he said: "Now we must start the day right," and he sat down to his electric organ and played Chaminade's "Autumn." At about 9 o'clock he took me round his estate, showing me his greenhouses and hothouses; then to his field laboratory and experimental laboratories, where animals are kept under the most ideal conditions, and then into the town of Rochester to the famous Mayo Clinic.

This is an enormous building capable of dealing with hundreds of patients in the course of a single day. The busy day is usually Monday, when anything from 500 to 750 new patients make their appearance, the total dealt with in the year being about 90,000. Scores of patients can be accommodated at any one time in cubicles set aside for test-meals; on another floor for blood tests; on another floor for urinanalysis. There are separate floors for different types of X rays, chest, gastro-intestinal tract, barium enemas, and so on. Huge waiting-halls, lounges, reading-rooms, writing-rooms, rest-rooms, and lecture theatres are available for the use of patients and staff, in addition to innumerable staff consulting-rooms and private offices. One large room is devoted to accommodating the honorary degrees and diplomas which have been presented to Dr. William and Dr. Charles Mayo, and the array of gowns conferred upon these two famous men is a wonderful sight.

Many acres of the basement are taken up with records, and a compressed air system extends from the central record office to the various hospitals in the town which are attached to the Clinic. Any doctor requiring a patient's previous case-sheet or history telephones to the record department, the notes are put into the compressed air system, and within a few seconds have arrived at the place where the doctor is working, perhaps two miles away.

In addition to ordinary records, each case is concentrated on to one small card. By means of a large number of small squares punched out in this card all salient points of age, condition, operation, after-history, &c., are recorded. Hundreds or thousands of these cards can be placed in a machine which automatically sorts them out in a few seconds so that any required data are rapidly ascertained. As an example, American insurance companies requested the Mayo Foundation to report on longevity following gastro-enterostomy for duodenal ulcer. The machine analysed some tens of thousands of records in a very short time and showed that the expectation of life is longer in these cases than in normal persons!

Associated with the Clinic are a group of hospitals with some 800 or 900 beds. The Kahler Hotel is partly hotel and partly hospital. Patients are investigated for a few days in the Clinic, staying in the hotel portion of the Kahler; then, if operation proves necessary, they move to the upper floors where a series of operating theatres are situated, this portion of the Kahler being run as a private hospital. All tissues removed at operation are subjected to immediate "frozen" microscopical section and only if any doubt exists is any further biopsy performed. By this means the surgeon sees the pathological section immediately after the operation and to a waiting stenographer dictates the details of his operation and the microscopical findings.

A feature of the work of the 460 doctors attached to this wonderful organisation is the weekly staff meeting. All rare, interesting, or difficult cases are described and discussed. All post-mortem specimens are shown on the screen, and medical literature bearing on cases is produced and reports compared. One is struck by the way the interests of the patient are considered first, last, and all the time, and by the harmony with which the vast body of medical men work together, blended by the remarkable personalities of the Mayos.

Further Travels.

Late that night Dr. William Mayo took me back to Milwaukee, where we arrived in time for the 7.30 A.M. session of the final day of the Congress.

The whole medical assembly and its arrangements were a model of organisation, thanks mainly to the managing director, Dr. William B. Peck, who personally conducts several hundred American doctors to Europe each year. His executive secretary was Dr. Edwin Henes, Junior, of Milwaukee, and the Speaker of the Assembly who arranged the programmes without a hitch was Dr. George V. I. Brown, also of Milwaukee.

The Assembly terminated with the fifteenth annual banquet, in the Hotel Schroeder, Milwaukee, when over 1000 guests were present.

The midnight train carried me to Toledo, Ohio, on the shores of Lake Erie, where I spent the morning with Dr. McKesson, who is, perhaps, the best-known anæsthetist in the United States. Here I saw laparotomies performed under pure gas-and-oxygen anæsthesia administered by McKesson, who uses nothing but nitrous oxide oxygen for all and every type of surgical operation. Later, he took me round his own factory where his numerous instruments are made.

The following day, Sunday, was spent on the banks of Niagara River, and on the next day I fulfilled my invitation to speak at Toronto. There I was welcomed by Prof. W. E. Gallie, and his band of keen assistants, and I had an opportunity of seeing his work in the General Hospital and in the large, magnificently equipped private block. End-results of cases of lumbar sympathectomy, and cases of repair by living fascial grafts were among many of uncommon interest.

Dr. Gilbert Parker, the Secretary of the Academy of Medicine, had arranged an enthusiastic audience of some 250, to whom I spoke and showed my film. No less hearty was the hospitality extended to me the following day by Dr. Edward Archibald, professor of surgery in Montreal, and his associates, amongst whom were Dr. Scrimgeour, Dr. Miller, and Dr. William Moffatt. The main lecture hall of McGill University was placed at my disposal for a late afternoon meeting, and I was honoured by the presence of a large audience.

As in the United States, so in Canada, everyone I met went out of his way to show me everything of interest and to extend every possible, often overwhelming, hospitality. The memory of these 14 hectic days in North America will amply repay the 10,000 miles of travel, and the inspiration received from the English-speaking giants of our profession beyond the seas will last a lifetime.

DETECTION AND MEASUREMENT OF DEAFNESS IN SCHOOL-CHILDREN.

SOME two years ago, when reviewing an important book on "Speech and Hearing," by Dr. Harvey Fletcher, director of acoustical research to the Bell Telephone Laboratories,[1] we remarked that the audiometer would probably be in general use by otologists in the near future, and commented on the value of the gramophone type of audiometer for testing large groups to discover those whose hearing is deficient for speech, mentioning that, at its trial in a school in New York City, 40 pupils could be tested at a time and about 100 in an hour. We are glad to note that this instrument has been adopted in this country, or Dr. G. P. Crowden and Dr. A. H. Gale have eported[2] that it has been employed in the examination of some 1500 children in the borough of Hornsey. The type of apparatus employed was the 4—A type gramophone audiometer, supplied by the Western Electric Company, and the outcome of extended experiments and practical trials by the technical staff of the Bell Telephone Laboratories. It consists of a gramophone with a magnetic pick-up, by which the sound is transmitted to a number of single headphones. The unit of intensity adopted is the *decibel*, which is the smallest change perceptible to the normal ear; the normal, or zero, level was determined by preliminary experiments in America, and the intensity of the voice sounds is graded down in 12 steps of three decibels each from 30 above to three below the zero level. On the record employed, each step consists of four series of three figures spoken in the ordinary voice. The normal of hearing doubtless varies within physiological limits, but it is found that children with a loss of nine or more decibels usually have some abnormal condition. Each ear is tested separately, and children who show this degree of loss are tested again to eliminate nervousness. The audiometer is a far more delicate test than the watch or the whisper; it examines the hearing for ordinary spoken words, which is the important function to be tested, and it eliminates the error due to lip-reading. It is not intended for use by the medical officer at his routine examination, but may be undertaken by the school nurse or teacher, and the children showing defective hearing set aside for his examination. With a little care on the part of the examiner to avoid haste and to interest the children, it is a thoroughly reliable method of testing a large number of children in a uniform manner. The authorities concerned should seriously consider its general adoption.

HOUSE APPOINTMENTS AT L.C.C. HOSPITALS.

THE question of the shortage of house physicians and house surgeons in London County Council general hospitals was raised at a recent meeting of the Council by Dr. C. W. Brook, who asked the chairman of the central public health committee: (1) whether any difficulty had been experienced in securing the services of suitable registered medical practitioners to act in both capacities; (2) whether the monetary remuneration attached to these posts was only £80 per annum: (3) whether, in view of the fact that many voluntary hospitals with established reputations were paying salaries of at least £150 to £200 per annum to members of their junior medical staffs, an early increase in the salaries paid to house physicians and house surgeons at general hospitals would be considered; and (4) what was the remuneration offered and paid to a locum tenens acting as house physician or house surgeon pending the filling of any vacancy that might arise?

Dr. Barrie Lambert (chairman of the committee) answered "Yes" to the first question. She said that the remuneration was £80 a year, plus full residential emoluments, and that a substantial amount of time is allowed weekly for post-graduate study. The scheme for the appointment of residents in the Council's hospitals is, she said, experimental, and was devised in order to provide hospital experience for those who are newly qualified and had held no previous hospital appointment. It has not yet been in operation long enough to judge whether or not the appointments meet a need. Posts in voluntary hospitals, where the duties are analogous to those of house surgeon and house physician in the Council's hospitals, usually carry only a small salary, often lower than £80 a year. The posts in the Council's hospitals which correspond to those mentioned in question 3 are junior assistant medical officers with a salary of £250 a year, together with full residential emoluments. No special rate of pay, said Dr. Lambert, has been fixed for a locum tenens. In one case only has it been necessary to engage a locum tenens for a house physician or house surgeon, and in this case the salary was £6 6s. a week, plus full residential emoluments.

THE HORSE IN WAR.

AT one period in France the British Expeditionary Force possessed roughly 475,000 horses and mules, and the total wastage from death, destruction, and missing amounted to approximately 250,000 up to the end of December, 1918. On the whole more than 750,000 animals took part in the war, and there is a case to be made out for the statement that the inability of Germany to acquire suitable horses—as exemplified by the retreat of her Grand Army with mixed teams of oxen and horses—was responsible for her failure. A pamphlet written by Major-General Sir John Moore,[1] late Director of Veterinary Services to the British Expeditionary Force in France, tells the story of the war service of the horse. A chapter on sickness and wastage describes the diseases from which horses in France suffered, and another on veterinary services gives an account of the hospitals and ambulances and their work. The story is of great interest not only to those who like horses but also to students of war. It ends with an appeal that equine members of our fighting forces should have their own memorial in endowed cha or wards in recognised veterinary teaching insti tions—and particularly at the Royal Veterina College in Camden Town, where a special fund h been opened for the purpose. The proceeds of t sale of the pamphlet are dedicated to this excelle project.

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[1] THE LANCET, 1929, ii., 615.

[2] Med. Officer, Sept. 13th, 1930, p. 113.

[1] Our Servant the Horse. H. and W. Brown, 20, Fulha road, S.W.3. 1931. Pp. 32.

ADDRESSES AND ORIGINAL ARTICLES

CHRONIC MASTITIS.[*]

BY W. SAMPSON HANDLEY, M.S. LOND.,
VICE-PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND; SENIOR SURGEON TO THE MIDDLESEX HOSPITAL

THIS lecture honours year by year the memory of a distinguished man[†] who belonged to the main body of the profession, from which the branches have sprung and from which they draw their nourishment. He was a general practitioner. It is fitting that the Bradshaw lecturer should pay tribute not only to Dr. Bradshaw but also to his successors of to-day. Unshielded by any official or institutional position, and constantly exposed to ill-informed criticism, they are faced by the infinite variety of disease in all its forms. Any man who embarks on such a gallant adventure deserves all the help and support the special branches of medicine can give him, and if he is wise will seek it.

Personally I owe a debt which I can never repay to the many practitioners who at one time or another, and some of them through long periods of years, have given me their confidence and provided me with the material upon which this lecture is based.

A minority of cases of chronic mastitis are relics of a preceding acute mastitis or traumatic hæmatoma, or arise from persistent local pressure by the bones of a corset, or from the pressure of a simple tumour upon the surrounding breast tissue. These facts show the inflammatory associations of the disease. As a rule, however, the disease begins insidiously. It derives importance not only from the mental anxiety it causes to the patient and her medical adviser, from its frequency, from the difficulties which may beset its diagnosis, but above all from its ultimate association with malignant disease. My main object is to discuss its pathogenesis but I must refer briefly to its clinical features.

Clinical Features.

In some cases chronic mastitis affects the whole of both breasts. The breast tissue retracts towards the nipple and the breasts are represented by highly convex discs of rubbery tissue, resembling the end of a lemon, and perhaps only two inches in diameter. If these cases were typical, it would be logical to seek for a purely constitutional cause of the disease, but in the typical case of chronic mastitis only a portion of the breast substance is affected and the other breast may escape. The area of election is the upper and outer quadrant. The indurations are frequently bilateral and not infrequently symmetrical. They are in most cases sector-shaped, bounded that is by two radii of the breast and the intersected portion of its circumference. Several such sector-shaped indurations may be present in the same breast. Since the breast consists of 15 to 20 sector-shaped lobes, laid together like shortbread in a circular box, it is clear that chronic mastitis affects the breast by lobes, affecting some and sparing others. This curious incidence must be determined by a local factor, probably a chance infection of certain ducts where they open, each separately from the rest, upon the surface of the nipple.

The sector shape of the indurations is very important from a diagnostic point of view, for carcinoma by contrast nearly always produces a rounded and defined lump, since the growth infiltrates indiscriminately around its point of origin and does not respect the anatomical boundaries between the lobes.

The sector-shaped indurations of chronic mastitis are uniformly and finely granular, only vaguely to be felt by the flat hand laid upon the breast. They can however be defined with considerable accuracy by the method I have termed the "cat-tread" method of examination. Two fingers make alternate pressure upon the breast while travelling slowly over its surface, after the manner of a cat kneading its bed before lying down. As it slips under the examining fingers the surface and the edge of the induration can be easily felt and distinguished from mere induration of the subcutaneous fat. If the breast is heavy and pendulous the examination should be made with the patient recumbent.

The thickening and tenderness are subject to exacerbations at the time of the menstrual periods when actual aching pain is experienced. A small minority of cases suffer from neuralgia so severe that it may necessitate mastectomy. In some cases the onset of a period relieves the pain and tenderness.

In certain cases the indurated area contains one or many defined rounded lumps, some hard, some elastic or fluctuating. These cases of *cystic chronic mastitis*, first described by Réclus and Schimmelbusch, and occurring usually towards middle age, have been studied especially by Lenthal Cheatle, who has shown that the cysts are distended portions of the duct system. Cystic mastitis appears to be a late development of the non-cystic form. It is a dangerous variety of chronic mastitis, and though it may persist unchanged for many years an ultimate termination in carcinoma is always to be feared.

In chronic mastitis the axillary glands may be slightly enlarged, tender, and elastic. The glands in carcinoma on the other hand are hard and insensitive. In chronic mastitis the breast is free from adhesion either to skin or fascia and the nipple is not retracted.

Chronic mastitis may be subject to subacute exacerbations in which the breast is swollen and heavy while the skin temporarily shows lymphœdema (peau d'orange) and may be slightly adherent to the breast, a fact which indicates the inflammatory nature of the disease. A tender ridge of lymphœdema may sometimes be felt along the lower margin of the breast. Nipple changes are absent in chronic mastitis except in the form which is secondary to catarrh of the main ducts. In duct catarrh, which is a precancerous condition, plugs of epithelial debris mark the orifices of the milk ducts, and from them worm-like casts like those from a sebaceous gland can sometimes be squeezed, while the thickened ducts can be felt as they converge to the nipple. Mastitis may coexist with early Paget's disease of the nipple.

Apart from duct catarrh there are three danger-signals in chronic mastitis which should never be ignored.

Duct-retraction.—The first is indrawing of one or more of the duct orifices upon the nipple. The fibrous capsule of a lobe of the breast is continued along its main duct to the nipple. Hence any fibrotic process in the lobe or its capsule, especially if it occurs around the main duct, exerts traction upon the nipple and tends to retract the duct orifice

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[*] The Bradshaw lecture, delivered before the Royal College of Surgeons of England, Nov. 12th, 1931.

[†] William Wood Bradshaw, M.A. Oxf., D.C.L., LL.D., F.R.C.S., who for many years practised at Reading.

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affected, which comes to lie at the bottom of a little pit or depression upon the surface of the nipple.

Deviation of the nipple.—A second consequence of fibrosis occurring in a lobe of the breast is an alteration in the long axis of the nipple, which tilts towards the indurated lobe. Marked degrees of this tilt are only seen in carcinoma. Slighter degrees, which need very careful observation for their detection, should arouse a suspicion that a precancerous stage of mastitis has been reached.

Serous or blood-stained discharge from the nipple.—The third danger-signal is a serous or blood-stained discharge from the nipple. This usually, but not necessarily, indicates the presence of duct papillomata in the ducts of the mastitic area. Except in the case of athletic young women under 30, in whom it may be produced by violent exercise, grave importance must be attached to the symptom.

Views of Sir Lenthal Cheatle.

The very existence of chronic mastitis is denied by no less an authority than Sir Lenthal Cheatle, whose admirable histological work on the breast has only this year received recognition from the College in the award to him of the Walker Prize for Cancer Research.

He says: "I never use the term 'chronic mastitis,' I say the state is, as may be, either a local or a diffuse hyperplasia of the breast tissues respectively."[1] What he asserts in this sentence does not exclude the truth of what he by implication denies. Hyperplasia is the most constant result of chronic inflammation. He further says, quite truly: "As the lesion is local and not affecting the whole breast the result must be a combined effort of physiological and pathological processes that are operating locally. Hence, much more complicated principles are concerned than merely those of inflammation."

Cheatle has made a masterly and accurate survey of the morbid histology of the breast in chronic mastitis. He has studied, as no one had done before him, the changes in the epithelium which lead to papilloma and to carcinoma. He has minutely described the various hyperplastic changes in the connective tissue and has shown that the appearances of chronic mastitis pass on into those of fibro-adenoma. He appears to infer that since chronic mastitis may produce a neoplasm, it cannot be at any stage an inflammatory process. He has particularly studied the fibrous hyperplasia just outside the basement membrane but inside the elastic layer which Ribbert[2] and Bonney[3] described as precancerous, and which he calls subepithelial hyperplasia. He says: "I have seen this hyperplasia in breasts in which neither malignant nor benign tumours were present, and also in breasts in which benign and malignant tumours were present in the same glands; yet I can observe nothing to contra-indicate the assumption that epithelial activity is the primary change in carcinoma." He says also, "In the early state of hyperplasia subepithelial inflammatory signs are absent," and so contradicts the careful observations of Ribbert and Bonney.

Thus Cheatle refuses to correlate the connective tissue and the epithelial changes, and to recognise that the latter are secondary to the former, that they are related as cause and consequence. Observation shows, as Bonney first demonstrated, that the connective tissue changes precede the epithelial ones which Cheatle erroneously asserts to be primary. Further, beyond a hint that a toxin or ovarian internal secretion may be concerned in producing it, Cheatle leaves breast hyperplasia as an unexplained mystery so far as I have been able to understand his writings.

Cheatle's rejection of the term chronic mastitis results from a too rigid conception of the process of inflammation and can only be accepted by those who are also prepared to deny, with him, the inflammatory nature of chronic tuberculous processes. He does not admit that increased circulation can produce hyperplasia. In order to prevent the contamination of his writings by orthodoxy he always segregates the offending term "chronic mastitis" between inverted commas. I yield to no one in my admiration for his work and have found his writings a storehouse of accurate minute anatomy and a key to the origin of cysts and fibro-adenomata, but he does not supply any light upon the pathogenesis and morbid physiology of the subject of this lecture, beyond his general view that it is a mammary hyperplasia tending to neoplasia.

Cheatle sharply separates chronic mastitis, which he calls "mazoplasia," and declares to have no connexion with cancer, from cystic chronic mastitis which he terms "cystiphorous desquamative epithelial hyperplasia," and regards as a precancerous condition. This separation is a purely arbitrary one, for he himself in examining breasts post mortem found in combination in the same breast mazoplasia, epithelial proliferation, multiple cysts, and signs of early duct cancer. He states that in 20 per cent. of cancers of the breast a cystiphorous condition is present, but appears to leave unexplained the other 80 per cent. of cases. Cases of cystic mastitis occur in which none of the cysts shows epithelial proliferation. Two such cases are recorded in the catalogue of our museum. The cysts in these cases were lined by flattened atrophic epithelium. On the other hand, mazoplasia, that is, non-cystic chronic mastitis, may lead to malignancy, for the breast figured in Fig. 78 (Cheatle and Cutler) cannot be described as cystiferous. It would appear therefore that mastitis and cystic mastitis are essentially the same process in different stages.

Cheatle gives such a wide extension to the term mazoplasia that as he describes it it ceases to be a clinical entity, and cannot be identified completely with chronic mastitis. He states that it is more physiological than pathological, and that it is almost universal in parous women up to the menopause. Pain and nodularity affecting the whole of both breasts characterise it, but clinical signs may be absent. It disappears at the menopause and never gives rise to cysts. If cysts appear in an area of mazoplasia they are due to an independent cystiferous hyperplasia. I admit that I cannot understand why the clinical fact that cysts often appear in an area of chronic mastitis should be thus strangely interpreted.

Cheatle recognises the coexistence of the connective tissue and epithelial changes which together make up the entity of chronic mastitis. He says:—

> "It is rare to find any type of connective tissue hyperplasia without a corresponding hyperplasia of the epithelium in the ducts and acini concerned."

And again:—

> "The processes I describe overlap each other to such an extent that I can show whole sections of breasts that contain in each respectively fibro-adenoma, duct papilloma, carcinoma, hyperplasia intra-elastica, hyperplasia extra-elastica, and cysts, as well as other types of epithelial hyperplasia."

Thus upon evidence derived from Cheatle's own writings his attempt to separate chronic mastitis from its cystic form must be held to fail. In cystic mastitis there is a raised secretory presence within the ducts which leads to their distension. Correlated with this there is a greater tendency in cystic mastitis to malignant change in the epithelium.

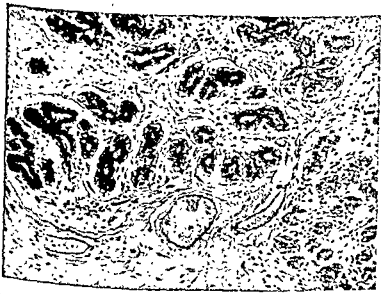
The concurrence of the epithelial and connective tissue changes shows that there is *an intimate link* between them. Before I attempt to trace this link, and that is the principal object of my lecture, I must clear the ground by considering certain ætiological factors to which varying degrees of importance have been attached.

Ætiology.

Involution.—The theory which maintains that chronic mastitis is merely a morbid variation of the involution which the breast suffers at the menopause can only be applied to cases where chronic mastitis affects the whole of both breasts, and falls to the ground because such cases are very exceptional, and because chronic mastitis is most often seen during the period of active sexual life.

Physiological congestion.—The breast is subject to recurrent high-tides of blood during menstruation, pregnancy, lactation, states of sexual emotion, and prolonged use of the pectoral muscles. In lactation an outlet for the tide of blood is provided in the milk flow. All the other conditions named have an association with chronic mastitis in that they may lead to its onset or aggravation. Mastitic thickenings, unperceived at other times, become tender or painful during the periods. Emotional novels may produce chronic mastitis in young women and excessive golf may have the same result. It is clear that an active circulation is an important ætiological factor. Physiological congestion by itself however cannot be the main cause of a condition which usually affects only a few of the lobes of the breast, leaving others unaffected. Universal chronic mastitis is rare, and only this form could be completely accounted for by general physiological congestion of the breasts.

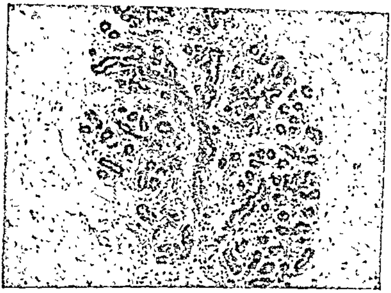
FIG. 1.



Chronic mastitis in the initial stage of lymphatic congestion or lymph stasis which precedes the stage of intralobular fibrosis. The acini are practically normal, though some of them show slight cystic distension. They are surrounded by a system of empty spaces, in places lined by definite endothelium. The system represents the lymphatic vessels and spaces of the lobule distended by lymph. The blood-vessels are also congested. The epithelium shows no change. (×105.) Figs. 1 to 3 are from Handley's "The Genesis of Cancer," Kegan, Paul, 1931.

Duct obstruction.—Mr. C. J. Bond [4] has shown that after indigo has been rubbed into the nipple particles of the dye may be found in the smaller ducts and even on one occasion in the acini. This experiment was made both in the cow and in the human subject. It has been shown that the first milk drawn from a healthy lactating mamma frequently contains organisms, usually staphylococci, and dairymen often reject the first spurts of milk from the cow's udder. The evidence tends to show that the terminal milk ducts cannot normally be regarded as sterile, but that on the other hand bacteria rarely penetrate very far into the recesses of the duct system. Dr. Helen Chambers has proved that the *Demodex folliculorum*, which is certainly a carrier of bacteria, is a very frequent inhabitant of the skin of the nipple, even in persons who practise the daily bath. From these facts it is, I think, fair to conclude that many women of middle age have suffered from mild unnoticed catarrhal infection of one or more of the terminal milk ducts, leading to partial obstruction of the duct, and, what is more important, to fibrosis around it. It is recognised that duct papilloma of the larger ducts frequently produces a mastitic thickening of the lobe draining into the affected duct, and this fact is very helpful in locating the position of a duct papilloma which cannot be felt.

FIG. 2.



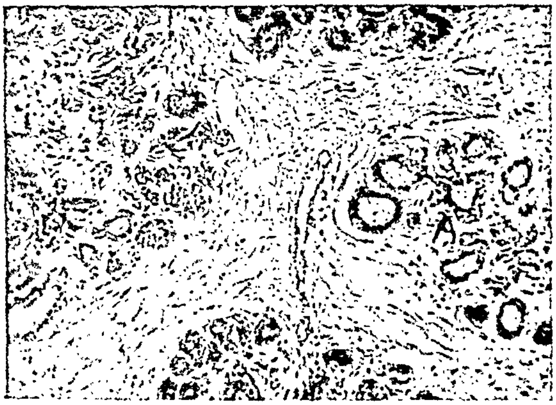
Chronic mastitis, stage of early intralobular fibrosis. Another part of the breast from the same case as the preceding figure. Intralobular fibrosis has now begun. A few empty lymph vessels or spaces can still be seen, and the perilobular lymph space is distended by lymph, but most of the distended lymph vessels and spaces have become obliterated and filled up with young fibrous tissue resulting from the proliferative response of the lymphatic endothelium and the fixed connective tissue cells to the stimulus of lymphatic congestion. For the same reason the epithelium of the small duct begins to show proliferative activity. (×85.)

From these facts it may be inferred that duct obstruction and the infection associated with it plays a very important part in the ætiology of chronic mastitis. How does it act? Cheatle and also Keynes [5] have suggested that absorption of chemical irritants derived from shed epithelium in blocked ducts may play an important part in the origin of cancer. Whether this be so or not, it is a fact that large breast ducts blocked by shed epithelium are usually surrounded by adventitious fibrous tissue the result either of bacterial infection or of chemical irritation. These abnormal sheaths must inevitably press upon or obliterate the lymphatics which accompany the duct, and prevent the discharge of lymph from the lymphatic vessels of the lobe into the subareolar plexus. This factor would appear to be of more importance than the obstruction of the duct lumen.

Evidence of Lymphœdema in Early Chronic Mastitis.

When an area of chronic mastitis is examined great variations are found in the appear closely adjacent lobules. It must I think be admitted on general principles of interpretation that these varying appearances represent different stages of the same process. The earliest stage will be seen in lobules, if such can be found, which show no hyperplasia, either of the connective tissue or of the epithelium. If other lobules show great connective tissue hyperplasia without epithelial change it will have to be inferred that connective tissue hyperplasia precedes and probably causes epithelial hyperplasia. If on the contrary many lobules show advanced epithelial proliferation without surrounding connective tissue changes, then one must accept Cheatle's view that epithelial hyperplasia is the primary change.

FIG. 3.



Chronic mastitis. More advanced intralobular fibrosis. From the same case as the two preceding figures. The distended lymph spaces and the perilobular lymph sinus have now disappeared, the intralobular fibrous tissue is becoming less cellular and more fibrotic. The acini are dilated, the epithelium is more active and is no longer single layered. Just above A there is a suggestion of incipient malignant infiltration. (×105.)

Early stage; lymphœdema.—It is not infrequently possible to find in an area of chronic non-cystic mastitis particular lobules which show no hyperplasia either of the epithelium or of the connective tissue (Figs. 1 and 4). These lobules however are not normal. They show important changes which I think have escaped attention, changes which are a key to the pathogenesis of chronic mastitis. Firstly, the lobule itself is surrounded by a space which appears to be a distended lymph sinus. Secondly, within the lobule each of the normal acini is also surrounded by a similar space, which can often be made out to be lined by endothelium. The appearances clearly demonstrate that the lobule is in a condition of lymphstasis or lymphatic congestion. It would appear that in the breast as in the thyroid gland (G. Scott Williamson) each secreting unit hangs in a kind of lymphatic sinus.

Later stage.—If now by way of contrast we examine a lobule which shows precancerous epithelial change and signs of incipient infiltration, there is no sign of the perilobular lymph sinus; the lobule is closely blended with the surrounding fibrotic tissue. Within the lobule, separating its acini, adult fibrous tissue, poor in nuclei and containing few round cells, is seen. The periacinous lymph spaces have disappeared. The connective tissue has become inactive while the epithelium is excited, many-layered, and may show incipient infiltration. The lobule has been deprived of its lymphatic drainage system by a cicatricial process which leaves no hope of its restoration.

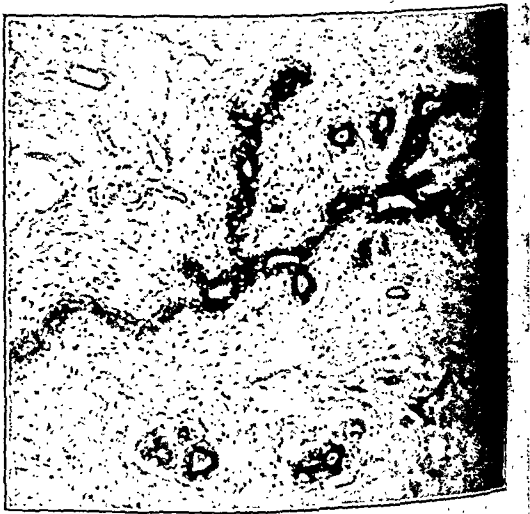
It is to be noted that in this stage the connective tissue changes may not be very striking to the eye, and this is probably the reason why Lenthal Cheatle denies their existence. Old fibrous tissue, poor in nuclei, is easy to ignore, and its tendency to contraction reduces the area which it occupies (Figs. 3 and 6).

Intermediate stage.—Let us now seek for a middle term between the two extremes we have studied: (*a*) lobules showing lymphœdema without other alteration; (*b*) lobules showing proliferation of the epithelium, fibrosis of the connective tissue, and disappearance of the lymph channels. It is not difficult to find in the same microscopic section lobules which show advanced connective tissue changes without much epithelial change, and we will study such a lobule (Figs. 2 and 5).

Some distended lymphatic spaces can still be seen in it and the perilobular lymph sinus persists, but the spaces between the individual acini are now occupied by young richly nucleated fibrous tissue, infiltrated with round cells. The epithelium of the acini remains normal, that of the ducts is beginning to show signs of active proliferation. Connective tissue hyperplasia clearly precedes epithelial hyperplasia, for lobules showing normal connective tissue with proliferated epithelium cannot be found.

To sum up, in an area of chronic mastitis those lobules which show practically normal acini with no evidence of abnormal epithelial activity are in a state of lymphatic congestion with distension of the lymph vessels and spaces. On the other hand, those lobules which show precancerous epithelial change show in addition the working of a fibrotic process which has much increased the total intralobular fibrous tissue and has obliterated the intralobular lymph vessels and spaces and destroyed the perilobular lymph sinus.

FIG. 4.



Figs. 4, 5, and 6 from another case of mastitis illustrate various stages of the disease. Fig. 4 shows lymphœdema around a longitudinally cut duct, and the acini opening out of it, each of which is surrounded by a clear space evidently due to distension of the lymph channels. (×72.)

Still more briefly it may be stated that in early chronic mastitis there is lymphatic stasis, in late chronic mastitis lymphatic obliteration with the formation of new fibrous tissue. As Victor Bonney has shown, the new fibrous tissue differs from the normal fibrous tissue in not containing elastic fibres.

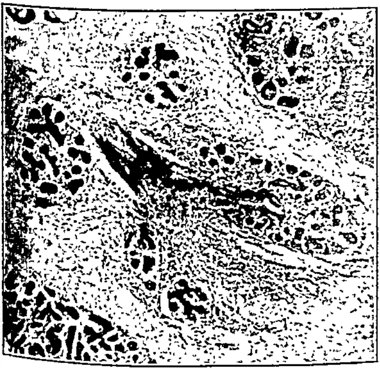
Cause and Effects of Lymphœdema.

Two questions now present themselves. What is the cause of the lymph stasis of early chronic mastitis, and what connexion has it with the intralobular fibrosis and the epithelial changes of the later stage?

In regard to the first question, lymphatic congestion is physiologically recurrent in the breast at the periods, during lactation, and probably during the long-continued active use of the pectoral muscles. What has to be accounted for is the persistence of the condition in certain lobes of the breast in chronic mastitis. An easy explanation is afforded by the casual duct infection of the large ducts near the nipple which, as we have seen, is so frequent, and which is probably lymphatic. These infections produce a periductal fibrosis often visible even to the naked eye, which is probably of lymphangitic origin. Whatever its origin, it must press upon the lymphatics of the affected lobe just before they empty into the subareolar plexus. A lymph block of the affected lobe is thus produced and the recurrent menstrual lymphatic congestion which affects the whole breast becomes permanent and pathological in the lobes thus deprived of their main lymphatic outlet.

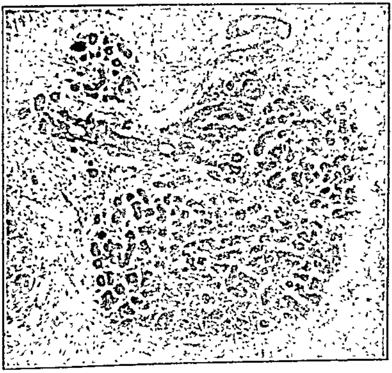
What are the effects of lymph block upon the affected lobe? This question is best approached by leaving chronic mastitis for a moment and considering a disease where there is general agreement as to the presence of lymphatic obstruction—namely, elephantiasis. In this disease lymph stasis is seen clinically to be a powerful agent for provoking the proliferation of endothelium and connective tissue cells, and for the production of fibrous tissue. Microscopical study shows that if the current in a lymphatic vessel becomes stagnant the endothelium proliferates and ultimately blocks the lumen. To this process I have given the name "static" lymphangitis. At the same time the connective tissue spaces become filled with lymph, round cells collect around the blocked lymphatic, and the fixed connective cells in the neighbourhood actively proliferate. A mass of fibrous tissue is ultimately formed. Later the skin epithelium receives an impulse to proliferate, and the skin becomes thickened, and finally papillomatous.

FIG. 5.



Two lobules to the left show lymphœdema with incipient endothelial proliferation. The large lobule in the middle shows definite proliferation of its connective tissue, with abundant round-celled infiltration. Above and to the right is a lobule in which connective tissue proliferation is more advanced. There is no epithelial proliferation. (× 56.)

FIG. 6.



From the same case as Fig. 5. Advanced endothelial proliferation within the lobule and obliteration of the perilobular lymph sinus. Though there is no change in the epithelium of the acini, that of the small duct seen above and to the left is beginning to proliferate, and has filled up the lumen of the duct. (× 56.)

It will be seen at once that this sequence of changes is the same as that we have traced in chronic mastitis. The lymph block of early chronic mastitis produces a "static" lymphangitis which obliterates the lymphatics and stimulates to proliferation not only the intralobular, but the interlobular fibrous tissue. Later, just as in elephantiasis, the epithelium is stimulated and precancerous papillomatous changes manifest themselves in the acini and ducts.

Every stage of the process can sometimes be seen in one microscopic section and these gradations are an important element in the evidence. If it be granted that lymph block is present in the earlier stages of chronic mastitis, and the evidence I have produced is convincing, then the later fibrotic and epithelial changes in the breast which actually occur are those which might be predicted from the observed effects of lymph stasis in other diseases.

The view that chronic mastitis is due to a lymph block of particular lobes of the breast, resulting from the compression or obliteration of their main lymphatic vessels near the nipple, is a clear and intelligible one founded upon definite evidence.

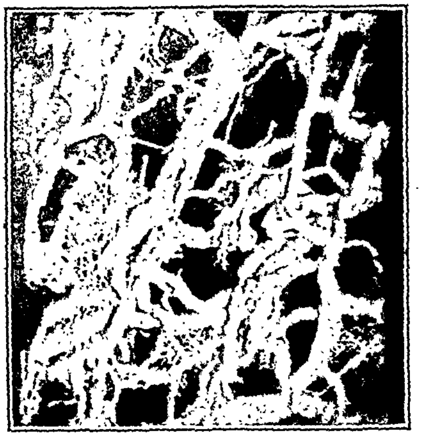
If the effect of obstruction of a lymphatic vessel in causing proliferation of the lymphatic endothelium and finally blocking the lymphatic—the process I have called static lymphangitis—can be correctly described as inflammatory, and few will deny it, then chronic mastitis is an inflammatory condition. In it are seen the ordinary phenomena of chronic inflammation—round-celled infiltration, succeeded by immature spindle-celled tissue, and finally by fibrous tissue. To these changes in the connective tissue the epithelial changes are secondary.

In the splendidly illustrated work on Tumours of the

Breast[6] just published by Cheatle and Max Cutler, which will be indispensable to all students of breast pathology, the authors state: "The condition to which the term 'chronic mastitis' is applied is much more a physiological process than a pathological one, and a process of inflammation least of all. Therefore we adopt the term mazoplasia in the description of the condition."

It is no doubt true, as Cheatle and Cutler state, that there is a menstrual cycle in the histology of the breast, and that in the premenstrual period the epithelium proliferates, while in the post-menstrual period the epithelium undergoes regressive changes and the connective tissue of the lobule increases in amount. These changes no doubt reflect variations in the flow of tissue fluid through the breast and resemble those of chronic mastitis. But these cyclical changes must not be confused with the irreversible changes produced by lymph block in particular lobes of the breast.

FIG. 7.



Injected human subarachnoid lymphatic plexus (Hyrtl). From a specimen preserved in the museum of University College, to which my attention was directed by Dr. H. A. Harris.

I submit that the vague conception of a physiological hyperplasia tending to neoplasia which is all that the authors offer as an explanation of chronic mastitis is merely a neological and almost mystical restatement of the problem. They have failed to account for the hyperplasia which they have studied so accurately and described so well.

On the contrary, if you accept my view that chronic mastitis is due to a lymph block of particular lobes of the breast determined by casual nipple infections which lead to obstruction of the main efferent lymphatics of the affected lobes, all the phenomena of the disease follow in natural and orderly sequence. I have demonstrated the œdema of early chronic mastitis. Lymph block wherever it occurs is followed after a period of years by fibrous hyperplasia, at a later period by the production of papillomata upon the overlying epithelial surface, and ultimately sometimes by carcinoma. I may venture to ask those who wish to pursue this subject to read my book on the Genesis of Cancer.[7]

The Lymphatic System in Pathology.

It so happens that most of the lectures I have given in this theatre have dealt with the lymphatic system, and I am prepared for the accusation that I am suffering from an obsession. I comfort myself with the knowledge that even so great a man as Pasteur had to suffer a similar accusation when he was "obsessed" by the rôle of bacteria in disease. It is probable that the influence of the lymphatic system in pathology is just as far-reaching as that of bacteria.

I am asking for a thorough revision of the accepted pathology of the day to bring it into harmony with facts about lymphatic anatomy, physiology, and pathology, some of them long known but many of them hitherto ignored. I realise that such a thoroughgoing revision cannot lightly be granted by professional opinion, but I am confident that it must come.

It is most needed perhaps in dermatology and in neurology. To illustrate this assertion I show in conclusion a specimen which, though foreign to the subject of my lecture, is very relevant to its underlying purpose. It is an injected specimen of the subarachnoid lymphatic plexus (Fig. 7) prepared by Hyrtl many years ago. It has been lying since in the museum of University College waiting for some neurologist to recognise it as a searchlight on neuropathology. Meantime the text-books of anatomy still deny that the central nervous system possesses any lymphatic vessels.

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CENTRAL COUNCIL FOR HEALTH EDUCATION.—This council, which held a conference on Nov. 10th, in the London School of Hygiene, has been in existence for four years and aims at providing a liaison between public authorities on the one hand and voluntary propagandist associations on the other. The president of this year's conference, Mr. Arthur Greenwood, late Minister of Health, spoke reminiscently of the changed ideas in health teaching since his boyhood. To-day, he said, a sense of publicity was necessary in all public teaching, and the expert had something to learn from the advertiser. Mr. J. C. Stobart, education director of the British Broadcasting Corporation, dealt chiefly with the remarkable services of broadcasting to the hospitals by reason of their appeals and with the influence of simple talks over the wireless to school-children and mothers. He emphasised the caution of the B.B.C. in using this remarkable instrument of propaganda. At the afternoon session Mr. G. S. Elliston, M.P., described the functions of the popular magazine entitled *Better Health*, which is the Council's direct contribution to popular teaching. Later a director of the Western Electric Company showed a Viennese film on the Study of Child Growth, and described the ways in which sound health films should be produced.

NEW COTTAGE HOSPITAL AT DRIFFIELD.—Lord Deramore, Lord Lieutenant of the East Riding, recently opened a new cottage hospital at Driffield given by Mr. Alfred W. Bean, of that town, whose name it will bear. The two-acre site was presented by Mr. Horace Taylor, also a local resident. The building has cost £8,350, and the £6000 which had already been raised has been invested for endowment. The simple building, which is of white concrete, was stated at the recent International Architects' Convention in Vienna to be "not only a model modern hospital but a masterpiece for the size," and is said to be the cheapest hospital that has so far been built in this country. The principal wards are described as being "on the lines of a greenhouse, without a glass roof," and patients can be wheeled in their beds on to a terrace which has a sundial engraved on the floor. There are six beds for men, six for women, and four private wards. The architects were Messrs. Elcock and Sutcliffe, of London. The old hospital of eight beds, which has served since 186 is for sale.

RADIUM AND PAIN.

AN INVESTIGATION OF CERTAIN RESULTS OF RADIOTHERAPY IN CASES TREATED AT UNIVERSITY COLLEGE HOSPITAL.

By R. S. Pilcher, M.S., M.R.C.P. Lond., F.R.C.S. Eng.,

RADIUM REGISTRAR TO THE HOSPITAL AND ASSISTANT IN THE SURGICAL UNIT.

In most recent publications on radiotherapy attention has been focused on good results, and little has been heard of ill-effects beyond vague warnings. In a form of therapy that is still largely experimental observations of failure are as important as observations of success. Moreover, the former are often established in a very short time, the latter not for many years.

In reply to an inquiry about one of our patients I recently received a letter from a doctor which expresses a view I have heard more than once. He says ". . . my partner and I have had under our care four cases of inoperable carcinoma treated with radium . . . in our opinion, comparing these cases with others of a similar nature that have not had radium, there has been a definitely greater degree of pain in the later stages and no appreciable prolongation of life." Prompted by this observation I have examined a series of cases treated by radium in which pain has been a prominent symptom, in order to see if any relation can be established between the symptoms and the treatment.

The significance of pain may easily be overlooked by the ardent radium therapist whose interest is centred on the lesion he is treating rather than on the patient. Yet in the choice between radium and surgery in the treatment of disease, in which neither can show a real superiority as judged by survival, the occurrence of painful sequelæ after radium might turn the scale in favour of surgery. The regression of a tumour under the influence of radium, important as it is as a scientific observation, does not necessarily imply a therapeutic success. If the patient's only symptom is pain and that is not relieved, his condition is but little improved. Again, if regression of a tumour is achieved at the price of pain from which the patient was previously free, the exchange is a poor one. On the other hand, one must beware of attributing to radium pain that is due to disease, and when the latter persists in spite of treatment it becomes very difficult to apportion the blame.

For the purpose of this inquiry a survey has been made of all cases treated at this hospital with radium for benign and malignant conditions from April, 1929, to September, 1930, inclusive. During this period 330 cases were treated, of which 250 were cases of malignant disease. From this series have been collected all the cases in which pain was, or still is, a prominent symptom.

Pain is a difficult symptom to assess, depending as it does on the susceptibility of the individual. Only those cases are included in which pain was persistent and of such severity that the patient sought relief. No account has been taken of the sensation of soreness associated with an ulcer—a symptom which disappears as the ulcer heals. Patients with malignant ulcers in the mouth have only been included if suffering from deep-seated or referred pain. Again no account is taken of transient sequelæ of treatment, such as peeling of the skin and proctitis.

The cases are divided into three groups: (1) patients who had pain before, not relieved by treatment; (2) patients who had pain before, relieved by treatment; (3) patients who had pain after but not before treatment—i.e., persistent pain beyond that incidental to treatment.

In Group 1 the treatment is a failure from the patient's point of view. It is important to ascertain if possible: (*a*) whether any of these cases are "cured" in the sense that the lesion treated has resolved; (*b*) whether there is any evidence that pain was aggravated by treatment.

In Group 2 the treatment has been of definite value whatever the prospect of "cure."

In Group 3 it is necessary to differentiate the effects of the disease from those of the treatment, and to ascertain if possible whether in any cases radium can be blamed for the pain.

In all three groups a search has been made for common factors associated with the results described. The factors that may determine the result of radiotherapy are so numerous and complex that little help can be expected from the small series of cases here recorded. Moreover, there has been no uniformity of technique, and certain factors such as screenage and linear intensity may be variable in a single case, making it almost impossible to assess their importance.

The first fact that emerges is that in none of the cases of non-malignant disease was pain a prominent feature, either before or after treatment. These cases are mostly gynæcological conditions and benign skin lesions; the former are treated by cavitary irradiation, the latter by surface or interstitial irradiation. The absence of painful sequelæ in 80 cases is not of much moment, since in the skin cases very small doses were employed, and in the gynæcological cases the radium was inserted into one of the most radio-resistant structures in the body—namely, the uterus. These points are stressed lest the results be taken as evidence against the possibility of radium per se producing pain.

Forty-three Cases of Pain Before Treatment.

Site.	Cases.	Died.	Relieved.	Not relieved.
Mouth and pharynx*	17	4	5	8
Nose and naso-pharynx	4	—	—	4
Breast	7	1	3	3
Uterus	9	2	2	5
Skin	2	—	2	—
Bladder	1	—	—	1
Prostate	1	1	—	—
Lymph glands ..	1	1	—	—
Bone	1	1	—	—

* Includes cases of glandular metastases after operation or irradiation.

Sixteen Cases of Pain After Treatment.

Mouth	8	Ear	1
Breast	2	Anus	1
Uterus	3	Skin	1

Of the 250 cases of malignant disease, 43 patients complained of pain before treatment, a low figure in view of the advanced stage of disease in the majority. Of these 43 cases, 10 died during or shortly after treatment, 12 were relieved of their pain after treatment, 21 were not relieved. Sixteen patients, having been free beforehand, experienced pain after treatment. This group should probably be larger, as little is known of some cases that proceeded to a fatal termination after failure of treatment, but I am

CASE 3.—Aged 50. A stout man with diabetes and an alcoholic history. He had had a carbuncle on the back of his neck for two weeks. On admission the carbuncle had a central necrotic area of 2 inches in diameter surrounded by an inflammatory zone measuring 8 by 6 inches. He was delirious on admission. Three 10 c.cm. doses of serum were given on successive days, and although there was some temporary improvement, after the first day the carbuncle continued to spread. Four days after the last dose of antitoxin he developed signs in the chest, and died on the following day. In spite of insulin, the diabetes was never brought under control. At autopsy pyæmic abscesses were found in the lungs, heart, and kidneys.

CASE 4.—Aged 46. A stout woman, an old case of diabetes. A carbuncle on the neck had started two weeks before, and on admission was about 2½ inches in diameter, with the centre beginning to break down. She was given three doses of 10 c.cm. of purified antitoxin on successive days, after which the edges of the lesion appeared to have stopped spreading, though very little sloughing occurred. During the next week the edges began to spread again, and a month elapsed before satisfactory sloughing occurred. The diabetes in this case was controlled throughout.

CASE 5.—A man, aged 21. He had had a painful swelling on the back of his neck for 13 days. A crucial incision had been made by his doctor five days before admission. Before the age of 15 he had been much troubled by recurrent boils on the back. On admission there was a carbuncle about 2½ inches in diameter on the nape of the neck. It was discharging freely through the incision. Temperature 100·2° F. Pulse-rate 100. On the day of admission 30 c.cm. of serum were given and on the following day 20 c.cm. more. Three days after the last dose there was still no change in the general and local condition. And the condition did not finally clear up for two and a half weeks, during which time two further incisions had to be made.

CASE 6.—Aged 17, a probationer nurse. On Jan. 15th she fell on her right wrist and developed pneumonia the same night. On Feb. 4th a rib resection for empyema was performed and an abscess on the right wrist opened. The empyema pus grew *S. aureus* and *B. influenzæ*, and the abscess culture gave *S. aureus* only. On Feb. 11th large subcutaneous abscesses on both hips were opened, the pus growing *S. aureus*. She was first seen by us on Feb. 12th, when a skin test with staphylococcal toxin was found to be negative. 10 c.cm. doses of raw antistaphylococcal serum were given on the 13th, 15th, and 17th, and on the 17th an abscess was opened on the left foot. The skin test on the 18th was still negative. The general condition at this time seemed to have improved, although the temperature and pulse-rates were still raised. During the next week the improvement was steady, and she went to a convalescent home on March 10th, all the wounds being healed. At no time was a positive blood culture obtained.

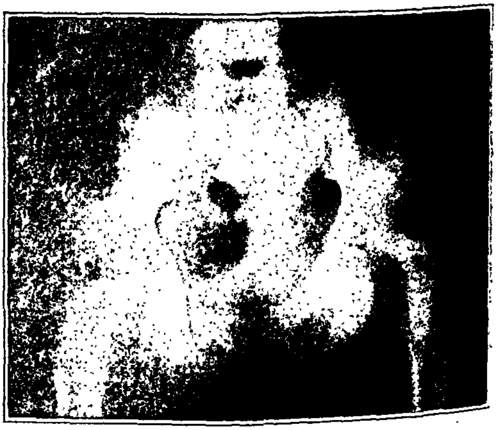
CASE 7.—A man, aged 18. Admitted on Jan. 22nd after three weeks' pyrexia, with much sweating, and pain in the left thigh, and with a four days' history of swelling over the right sterno-clavicular joint. He appeared to be very ill on admission and the temperature was swinging up to 102° F. Small pustules were present on the face and back of the neck. On Jan. 26th a lump in the neck was aspirated; thin pus was found, growing *S. albus* only. On Feb. 3rd there was swelling of the left elbow. On Feb. 12th a swelling in the right iliac fossa just above the pubis was found. It was hard, tender, and thick. On Feb. 20th this swelling was incised and pus was found under the pubic periosteum, and the abscess was drained. The pus grew *S. albus*, yielding hæmolysin. The temperature remained high and swinging, and the swelling persisted in the elbow. A blood culture on March 14th was sterile. Between March 21st and March 24th four 10 c.cm. doses of raw antistaphylococcal serum were given. The temperature remained high until April 2nd, after which a steady and complete recovery followed."

CASE 8.—A boy, aged 10. Admitted May 7th, 1931. Two weeks previously he fell when skating and hurt his right arm. May 2nd: Pain in left groin especially when standing on left leg. In bed. May 6th: Drowsy with some vomiting. Admitted with vague tenderness round left hip. May 8th: Blood culture grew *S. aureus*. 11th, 12th, 13th, 16th, 17th: 10 c.cm. antistaphylococcal serum. Before giving serum the condition seemed to be acutely dangerous, but following serum treatment the clinical condition became stabilised, although the temperature remained swinging up to 101° F., and the pulse fairly high. During this period there was pain in both wrists and in the right ankle. May 16th: Swelling on the right ankle was incised, but only sterile serum exuded. May 26th: Swelling over lower end of right tibia was incised but the bone was healthy. No definite metastatic abscess occurred, although the temperature had persisted with diminishing evening rise until July 24th. At the end of July a second course of antitoxin was given without appreciable result. There have been effusions into joints, and the urine has contained pus and *S. aureus* in very large numbers, as indicated by direct inoculation into melted agar. Apart from the œdema round the right ankle there were never any localising signs, but recent radiograms have shown that the following bones were involved: both femurs, both acetabula, the lower ramus of the left pubic bone, and the right fibula.

CASE 9.—A girl, aged 16, on July 17th, 1931, twisted her ankle without apparent injury to the knee. Next day the knee was painful, and on admission on the 24th it was inflamed, her temperature was 101° F. and pulse-rate 124. On the 25th she was worse, and blood culture grew *S. aureus*. The knee was opened and drained, causing some general improvement, though the temperature and pulse-rate remained high. On the 29th the general condition was still un[illegible]factory, and 30 c.cm. concentrated antitoxin were give[illegible] each of three days. The temperature and pulse-rate drop[illegible] somewhat but rose later owing to unsatisfactory dra[illegible] but the general condition improved, her appe[illegible] suggesting a severe local rather than a general infe[illegible] On August 24th the knee was again incised and supe[illegible] pus was found. The temperature became normal, th[illegible] the pulse remained high. No metastatic abscess occ[illegible] The further progress of the case has been uneventful.

CASE 10.—A man, aged 28, was admitted on August 1[illegible] 1931, with a four weeks' history of superficial infection o[illegible] right elbow following a graze. He had been ill for [illegible] days with cough, sweating, and pain in the right [illegible] On admission he was very ill, with temperature 10[illegible] pulse-rate 124, and respirations 50. Apart from [illegible] profuse sweating the condition resembled lobar pneum[illegible] The arm showed a superficial cellulitis, and cultures fro[illegible] arm and the blood grew *S. aureus*, which was also pr[illegible] in the sputum. On the 18th, 19th, and 22nd he rec[illegible] concentrated antitoxin, 20 c.cm. each time. There [illegible] much less sweating on the following days, but the pat[illegible] remained very ill. On the 21st an abscess developed o[illegible] arm, was opened up and drained, and soon cleared up. [illegible] the 23rd an almost painless abscess developed between [illegible] scapulæ, and was opened on the 26th. Sept. 3rd, temperature 99–100°, respiration 32. The patient was still very ill and an empyema was suspected. The sputum was purulent. The case was probably one of those, usually rapidly fatal, in which the septicæmia causes multiple small pulmonary abscesses. This patient may have acquired some immunity during the month's infection of the arm before the general invasion occurred. The temperature continued to swing up to 101° for three weeks but the general condition gave no anxiety, and an uneventful recovery took place.

FIG. 1.



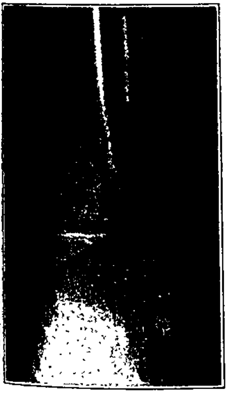
Radiogram of pelvis and hip-joints.

CASE 11.—A boy of 16 had had pain in the right thigh for seven days before admission. During this time he had had a high temperature and had slept little. On examination there was great toxæmia and jaundice. Temperature 103–105° F. Pulse-rate 120–140. The blood culture grew *S. aureus*. At operation the right thigh was extensively infiltrated with pus, and there was extensive osteomyelitis of the femur. An injection of 30 c.cm. of serum was given on the day of the operation and another injection of 20 c.cm. on the following day. There was no improvement and he died 48 hours later. At autopsy there were pyæmic abscesses in the heart, lungs, kidneys, and thyroid.

CASE 12.—A boy of 10 had had a painful swelling of the lower lip for five days. On admission the lower lip was tense and discharging pus at several places. Temperature 102·5°F. Pulse-rate 116. He appeared to be very ill. Death occurred after 48 hours, an injection of serum having had no result.

CASE 13.—A girl, aged 13, had extensive cellulitis of the right side of the face, and died on the day following admission. An intravenous injection of 10 c.cm. of serum soon after admission had no effect.

FIG. 2.



Radiogram of lower end of tibia and fibula.

The cases treated fall into three groups, and they are arranged in that order above: cases of carbuncle (Cases 1 to 5); cases of staphylococcal septicæmia and pyæmia (Cases 6 to 10); and finally cases of a fulminating character in which there was very little hope that any treatment could be effective (Cases 11 to 13). To assess the effect of a particular kind of treatment in acute bacterial infection is obviously difficult. The virulence of the infection and the resistance of the patient are two factors that are incapable of measurement, and it is therefore impossible to employ controls. A good example of this is the ordinary case of acute osteomyelitis in which, before the bone is exposed, the blood culture is positive in about 90 per cent. of cases. The patient therefore has a septicæmia, but fortunately in the ordinary case this has no bad prognostic significance. On the other hand there are cases with a positive blood culture in which the prognosis is obviously grave. The distinction between these two types is observed clinically. We have no other test than the blood culture.

The results obtained in cases of carbuncle have been indefinite. The first patient who had serum undoubtedly benefited. There was an immediate improvement in the general condition, but the most noteworthy feature of the case was the unusual rapidity with which the slough separated, leaving a clean granulating surface. In Case 2 again the treatment seemed to influence the course of the disease favourably. This favourable experience was not repeated however in the other three cases. Case 3 can hardly be considered, since it was certain that a man of the type of this patient with a huge carbuncle and uncontrolled diabetes would die.

Cases 4 and 5 appeared to be unaffected by the serum.

There remain the cases of staphylococcal septicæmia and pyæmia. Of these the most striking is Case 8. This boy had a staphylococcal septicæmia obviously due to osteomyelitis, but the site of the osteomyelitis could not be found. He was profoundly ill for many days, and if any further proof of the severity of the infection is needed it is given by the extent of the bone lesions as shown by later radiograms (Figs. 1 and 2). The injection of the serum was the turning point in his recovery, and the improvement was shown by a great change in the general condition. The temperature and pulse-rate did not alter very greatly, and in fact in none of the cases has there been a dramatic and immediate fall in the temperature and pulse-rate. Of the other four cases, two had positive blood cultures, and the other two cases developed several pyæmic abscesses before serum treatment was given. In all cases the serum produced a change for the better in the general condition, and in all cases a further development of metastatic abscesses ceased.

We were definitely of the opinion that the serum therapy prevented death in some cases, and shortened the course of the disease in all.

In conclusion it may be stated that the serum is a valuable method of treatment in severe staphylococcal infections such as septicæmia and pyæmia. The results are much less definite when the lesion is localised as in carbuncle. The serum has, however, not been tried in any case of carbuncle with severe constitutional disturbance with the exception of Case 3, in which the uncontrolled diabetes and the type of patient prejudiced the result.

Before coming to a definite conclusion further experience of the treatment in such cases is necessary.

Our thanks are due to Dr. M. H. Jupe for permission to publish the radiograms, and to Mr. Alan Perry for the notes of one case.

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TICK-BITE FEVER IN SOUTHERN AFRICA.

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AND
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IN 1911 both Nuttall[1] and Sant'Anna[2] gave a short description of what they had recognised as a new specific fever occurring in Southern Africa and conveyed by the bite of a tick. Sant'Anna had seen the disease at Lorenzo Marques, and Nuttall had collected written information from Dr. E. Turner, Mr. Howard, and Dr. Hindle, who had all had experience of the disease. Nuttall proposed the name of "tick-bite fever." As this name has priority, and is fully descriptive, we think it should stand.

Tick-bite fever is a mild disease. It has no mortality, no sequelæ, almost no complications, and practically no literature. It occurs in the southern half of Africa; there are localities like Lorenzo Marques where no newcomer escapes it (Prates[3]). It leaves a solid immunity. It is not contagious. It is often confused with typhoid, paratyphoid, measles, and even with tick fever, and perhaps with typhus. Its mildness, well known to the inhabitants of affected areas, has led to its neglect by scientists and patients alike. Yet it is a well-defined clinical

CLINICAL AND LABORATORY NOTES

CONTACT INFECTION IN ACUTE POLIOMYELITIS

WITH SHORT INCUBATION PERIOD.

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THE following two cases of acute poliomyelitis in which infection appears to have been acquired through direct contact present several features of interest.

CASE 1.—A. B., female, aged 19 years and 9 months, clerical officer in a Government office, gave no history of any serious illness. She spent the first week of July, 1931, on holiday at Felixstowe with her friend, C. D. For the third week in July she went to Folkestone with another friend. On August 7th she was admitted to a ward in a general hospital in London in order to have two exostoses on the back of the os calcis removed. The operation was duly performed, and A. B. was making a good recovery, when on August 18th she had a febrile attack (temp. 99° F.) and complained of stiffness of the neck. The illness was regarded as a mild attack of influenza. It is interesting to note that the ward occupied by A. B. is mainly an ear, nose, and throat ward, and that several of the patients suffered from sore-throat and tonsillitis at the time. One of these cases may have been a carrier of poliomyelitis. A. B.'s rise of temperature soon subsided, and she then complained of pain in the left shoulder and inability to raise her arm to do her hair. This was regarded as neuritis, and she received some diathermy. On Sept. 22nd she was discharged from the hospital, and returned to duty at the office for one day on Sept. 24th.

In the meantime, A. B.'s friend, C. D., had been diagnosed by Dr. R. T. Bailey as suffering from acute poliomyelitis. A. B., who still felt weakness in her left arm, now consulted Dr. Bailey, who diagnosed poliomyelitis in her case also, and referred her to Dr. C. P. Symonds. Dr. Symonds saw A. B. on Sept. 29th at his out-patient clinic at Guy's Hospital. She then had flattening of the left deltoid, flaccid weakness of the left shoulder-girdle, and paralysis of the spinati. She also showed weakness of the left quadriceps muscle and of the flexor muscles of the left knee. It was evident that A. B. was suffering from the effects of a recent attack of acute poliomyelitis.

CASE 2.—C. D., female, aged 19 years 9 months, clerical officer in the same Government office as A. B. No history of any serious illness. As already mentioned, C. D. spent the first week of July, 1931, with her friend A. B. at Felixstowe; from August 15th to 23rd she was at a girl guides' camp in Sussex. On inquiry all girls at this camp appear to have had a clean bill of health. On August 30th C. D., accompanied by her mother, visited A. B. in her ward at the hospital and kissed her twice. The interview lasted about ten minutes. On Sept. 1st C. D. had a headache and a high temperature (102° F.), and was confined to bed. On Sept. 3rd and 4th she complained of pains at the back of the neck and in her head; her throat was inflamed and septic. Her temperature continued to be elevated in the evening, and on Sept. 5th she lost the use of her right arm. By the 10th the patient's temperature was normal. On Sept. 29th C. D., by Dr. Bailey's advice, attended Dr. Symond's out-patient clinic at Guy's Hospital. Dr. Symonds confirmed Dr. Bailey's diagnosis of acute poliomyelitis, and found paralysis of the muscles of the left shoulder present, the deltoid being especially affected.

The chief points of interest concerning these two cases are as follows. (1) Acute poliomyelitis has occurred through contact infection in two young adult females of identical age. (2) The resulting paralysis in both cases was of very similar distribution, affecting principally the left shoulder muscles. (3) A. B. contracted poliomyelitis in a hospital ward while undergoing treatment for a surgical condition. The probable source of her infection was an undetected carrier, also an in-patient in the ward. (4) The non-recognition of the true nature of A. B.'s illness while in hospital illustrates how liable poliomyelitis in the acute febrile stage is to escape detection. (5) The contraction of poliomyelitis by the second patient through kissing the first patient appears to be a clear case of contact infection. The incubation period (two days) was short, but falls within the range of two to ten days given by Wickman, Flexner, and others. The first patient was still infectious on the twelfth day of her disease.

My thanks are due to Dr. C. P. Symonds and to Dr. R. T. Bailey for much information and assistance in tracing the epidemiology of these two cases.

PYELITIS IN NEWLY BORN INFANTS.

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THE recognition of pyelitis in childhood is commonplace, but in very early infancy the clinical picture and the diagnosis may be obscure. Pyelitis is probably present in the first few weeks of life more commonly than is generally supposed. Because of their age I consider that the following two cases may be of interest.

FIG. 1 (Case 1).

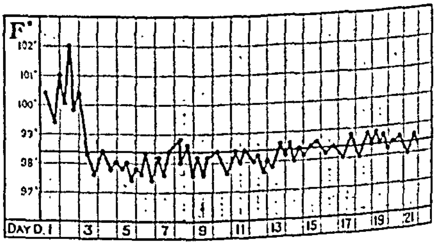

Chart showing temperature variations from the first to the twenty-first day of illness.

CASE 1, a male infant, was first seen when aged 1 month. The birth-weight was 7 lb., and the weight at 1 month was 6 lb. 11 oz.; the infant was breast-fed. Three days previously, when 4 weeks old, he had been circumcised, and on the following day was noticed to be feverish. The urine contained both pus and *B. coli*. The child was put on alkalis, and the temperature rapidly settled to normal, and the infant gained weight. At the end of six weeks the urine was quite normal, and at 5½ months the infant weighed 16 lb.

CASE 2, a male infant, was seen when aged 1 month. The birth-weight was 8 lb., and the child was artificially fed throughout. He was circumcised when a fortnight old, and seemed to do quite well for a few days. Ten days after

(*Continued from previous page.*)

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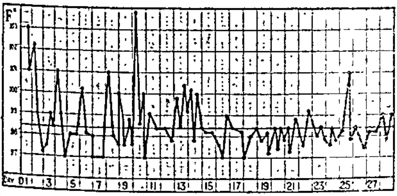
the circumcision he had a rigor, and his temperature rose to 105° F. An examination of the urine showed much pus, and *B. coli* were present. Alkalis were given, and the temperature gradually subsided, but there was a marked tendency for it to swing for some days. The urine became quite clear in four weeks. The child gained weight rapidly, and when 1 year old weighed 23½ lb.

PREVIOUS CASES REPORTED.

In the large series of cases reported by Poulsen,[1] Ramsay,[2] and Chown,[3] no infant under the age of 1 month is mentioned. Kretschmer [4] reports pyelitis in one male infant, aged 27 days, in a series of 86 cases. Von Reuss [5] refers to a paper by Kovalowsky and Moro, who reported an infant, aged 8 days, with a typical pyelitis; it died on the eleventh day.

FIG. 2.



Temperature chart in Case 2.

Under the title, Congenitally Acquired Pyelitis, Conrad [6] reports three cases in female infants. In two of them convulsions were present and a high fever from birth, pus, albumin, and *B. coli* being present in the urine. These all disappeared on alkaline treatment. In each case the illness commenced from birth, and—since the mother of one infant had had pyelitis—Conrad raises the question whether the infection was not, in fact, acquired during intra-uterine life.

A very interesting paper by Sauer [7] on neonatal pyelitis describes the symptoms present in such cases. He claims that the disease is more frequent in the male than in the female, and that vomiting and diarrhœa are common. In a series of 15 non-thriving new-born infants, with gastro-intestinal symptoms, *B. coli* and pus were found in the urine of 14. Graham [8] reports six cases of pyelitis in newly born infants. The urines were heavily infected by the second or third day. Wilson and Schloss [9] describe three male and two female infants under the age of 1 month with typical *B. coli* pyelitis.

In all, some 30 newly born infants have been reported as suffering from pyelitis, the findings being the presence of pus and *B. coli*, with general constitutional disturbance. When presented with the two cases described above, I felt very uncertain about the ultimate prognosis, especially as they were males. The possibility of some congenital malformation of the urinary tract was seriously considered. The progress that both infants have made, and the fact that the urine cleared up, suggests that the urinary tract in these two cases is normal. One is accustomed to associate pyelitis most commonly with females, but published records suggest that it is as common in males as in females in the neonatal period. Whether or not circumcision had anything to do with the onset of the pyelitis it is impossible to decide. In one case the disease appeared to follow immediately on the operation, but in the second there was an interval of ten days. It must be pointed out, however, that in Case 1, where the symptoms appeared to follow immediately after the operation, the child weighed less at one month than when born. This suggests the possibility that the pyelitis had been present, undiagnosed, for some days previously. In neither case were gastro-intestinal symptoms prominent. Restlessness, pallor, and rigors attracted the attention of the maternity nurse in both cases, and prompted the collecting of a specimen of urine.

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THE PHOTO-ACTIVE FUNCTION OF CHOLESTEROL IN SKIN CANCER.

By PROF. A. H. ROFFO,

DIRECTOR OF THE INSTITUTE OF EXPERIMENTAL MEDICINE AND CANCER RESEARCH, BUENOS AIRES.

THE skin is the most frequent site of cancer in the cases attending my institute, and of every 100 patients suffering from cancer of the skin, 98 have developed it on the face. The commonest site is the nose—61·4 per cent.; then come the cheek, 18 per cent.; the ear, 7·9 per cent.; the forehead, 7·7 per cent.; and the temporal region, 4 per cent. These figures suggested to me a relation between environmental factors and the development of the tumours. The most likely exciting cause of tumours of the face, particularly of the nose, is obviously the sun, to which this part of the skin is exposed. I have therefore undertaken investigations into the cholesterol content of the skin in various areas, basing my work on a theory I have long held: that the soil in which a neoplasm appears is powerfully influenced by the lipoids. I have found a very considerable difference of cholesterol content between the skin of the face and that of the abdomen [1] in the same person; in some cases there was five or seven times as much cholesterol in the face. Further investigations showed marked differences between the covered and uncovered parts of the face itself; the nose contained over 73 per cent. more than the forehead.

These results seemed sufficient to indicate a heliotropism of cholesterol. I therefore irradiated the skin of the back of rats with sunlight and with ultraviolet rays, keeping an excised portion of skin from the same level as a control. An increase of cholesterol was found in the irradiated skin.

Two coincident sets of facts are involved: on the one hand the influence of cholesterol in the development of tumours—an increase of cholesterol in precancerous regions, an increase of cholesterol in tumours themselves, hypercholesterolæmia in precancerous conditions, and the frequency of skin cancer in areas rich in cholesterol; on the other hand, the heliotropic quality of cholesterol, a phenomenon which I connect with its photo-activity, shown by the photographic plate.

My experiments in the latter connexion [2] show that stenosis which was rather characteristic. Non-malignant growths would just as surely kill—in time, by pressure—as malignant ones. They were all extrapulmonary and pushed the lung in front of them as they grew. Fibromata were the commonest, and grew almost invariably from the posterior thoracic wall. They might be large before causing symptoms and appeared as a well-defined homogeneous, rounded opacity. Dermoid cysts grew from the second or third branchial clefts or thymic remains and were thus anterior. They were more irritant than fibromata, often irregular in shape and adherent to the lung tissue. Diagnosis was easy in a lateral radiogram, in which the growth was seen to arise in the anterior part of the thorax. Early diagnosis was of the utmost importance.

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[2] Roffo: Ibid., 1930, xxiv., 535.

Dr. PETER KERLEY spoke on

MALIGNANT CONDITIONS.

The great difficulty, he said, was to find a classification. He adopted a simple radiological grouping: root growths and lobe growths. The lobar or pneumonic form showed different appearances according to the lobe affected. The fissures were altered in position by contraction of the lobe. In the hilar form the opacity was densest near the root; often a second, less dense opacity due to collapse covered the whole lobe. Carcinoma could be diagnosed with certainty if the vascular markings were visible in the hilar shadow and invisible in the peripheral area. Carcinoma was the commonest cause of bronchial stenosis in Europe. Diaphragmatic paralysis was a most valuable sign. The right phrenic ran through a group of hilar glands while the left ran clear; hence the frequency of right phrenic paralysis. The paratracheal and bifurcation glands affected the vagus, disturbing the cardiac rhythm and causing abdominal symptoms, often gastric crises like those of tabes, which completely overshadowed the lung symptoms. Very rarely a lung cancer directly compressed the œsophagus and caused vomiting. Pleural effusion was the bugbear of the radiologist, for it masked nearly everything. Carcinoma involving the pleura caused such great thickening that it was impossible to tell it from underlying lung involvement.

The weakest point in the mediastinum was at the level of the third dorsal vertebra, and here displacements were seen. In fibrosis the œsophagus and trachea were always displaced and rotated. In collapse the trachea as a whole swayed slightly to the diseased side. Effusion soon depressed an atonic diaphragm, which pushed the liver down, often leading to a diagnosis of liver metastasis. The lung lymphatics were important to every radiologist. If the paratracheal group were easily visible the primary growth was probably extrapulmonary. Tuberculous pneumonia, syphilis, and aneurysm might simulate carcinoma, but were distinguished by the fibrosis of tuberculosis and by taking a film with a Potter Bucky diaphragm and a harder tube to show aneurysm. Secondary infection of carcinoma was frequent, but did not obscure the neoplasm. Occasionally the signs of abscess might obscure those of growth. A fluid level in the centre of a collapsed area was diagnostic. In the absence of enlarged glands or phrenic paralysis, diagnosis of malignant abscess rested on its asymmetrical position in relation to the area of consolidation and its connexion to the mediastinum.

Hilar carcinoma showed as a dense opacity round the root without collapse. It was easier to diagnose, but might rapidly be converted into the pneumonic form. Abscess formation was very frequent, but pleurisy was a late complication. Abscess did not obscure the diagnosis, as it remained the same size while the growth increased. A lobe might collapse and then this type could not be distinguished from the pneumonic type without a Potter Bucky diaphragm. Obstruction of the vena cava was commoner in this type. Lymphadenoma and syphilis were the only conditions resembling it. Lymphadenomatous or lymphosarcomatous glands responded to a test dose of X rays. Syphilis was always associated with gross interstitial emphysema. Secondary deposits might be confused with a form of pulmonary tuberculosis associated with diabetes; in this, however, a cavity might be seen and most of the nodes were in the upper part of the lung.

DISCUSSION.

Dr. F. G. CHANDLER disagreed with Dr. Melville on one point only: he did not think radiography the best method of early diagnosis of tuberculosis, for shadows did not always appear before symptoms, or before bacilli could be found in the sputum or fæces. He agreed with Dr. Kerley that malignant pulmonary disease was apparently on the increase, an increase due mainly to improved methods of diagnosis. In the past it had often been mis-diagnosed. The difficulty of diagnosis when pleural fluid was present might be overcome by replacing the fluid with air or oxygen. Negative findings were of as much value as positive signs. An area with no air-entry and a negative radiogram strongly suggested growth. Routine examination would often show masses of growth which had caused no physical signs. No abdominal operation for malignant growth was justified to-day without radiography of the chest.

The PRESIDENT mentioned Dr. Dunlop's analysis of cancer in relation to the ageing of the population, which showed that there was no absolute increase in cancer except of the breast.

Dr. MAURICE DAVIDSON deplored the lack of a recognised standard of normality, and wished he could see a series of chest X rays from healthy people of various ages in various occupations. He stressed the insufficient amount of correlation between the clinician and the radiologist. The term "lung abscess" still included a number of differing conditions and led to confusion. It might still be diagnosed both clinically and radiologically in patients in whom it was merely the secondary expression of some underlying condition. He showed a series of slides of interesting cases of lung carcinoma, and produced figures illustrating the increase of this condition—which he believed to be a real increase.

Dr. R. E. ROBERTS described some typical cases presenting difficulty in diagnosis to the radiologist. He thought that radiograms gave the earliest diagnosis of phthisis but left much to be desired in malignant disease. Silicosis with tuberculosis might be very difficult to tell from silicosis with malignant disease. Extensive mottling might cause confusion between miliary tuberculosis and carcinomatosis. Despite many difficulties, however, radiology gave more information than other methods. There was great need for collaboration.

Mr. J. B. HUNTER said that radiology could give great help in the decision whether or not a phrenic avulsion should be done; this operation should be performed if the diaphragm were in spasm. It was surprising what a shrunken lung might be found round a tumour; often the X ray gave no idea of the size of the growth. Lipiodol hardly ever ran into a lung abscess. Odd shadows in the chest were thrown by retrosternal goitres, which could be diagnosed if the patient were asked to swallow while being screened —no other tumour of the chest would move.

Dr. R. A. **Young** emphasised the importance of team-work and correlation and strongly supported Dr. Chandler's protest against the statement that radiology gave the earliest indications of phthisis. It was dangerous to take a negative radiogram as proving a negative, and to ascribe shadows to miliary tuberculosis without good reason. He hoped that the Section would draw up a standard—though not a stereotyped—form of report. He pointed out the great value of radiology in diagnosing interlobar conditions. The lateral view was often of great assistance. He thought that failure of lipiodol to enter an abscess was due to œdema of the bronchus. He declared his belief that malignant disease of the lung was on the increase. Teratomata should be treated surgically because of their irritant nature and of their liability to malignancy.

Dr. **Melville** briefly replied.

SECTION OF MEDICINE.

At a meeting of this section held on Nov. 24th, the chair was taken by the President, Dr. H. **Morley Fletcher**, and Dr. **Robert Hutchison** opened a discussion on

Nervous Dyspepsia.

To simplify the discussion, he defined dyspepsia as any discomfort during digestion which had origin in the stomach, and remarked that "nervous" was not synonymous with "functional" dyspepsia, although most functional cases were of nervous origin. He distinguished three groups of nervous dyspepsia: the psychoneurotic, of central origin; fatigue dyspepsia, apart from any mental perturbation; and a psychogenic group in which no disorder of gastric function could be demonstrated and in which the symptoms might be due to a lowering of the threshold of consciousness. In functional dyspepsia he recognised two groups: the hypersthenic and the asthenic, the former produced by exaggerated nervous excitability, through the vagus, as in the "live wire" type of man, and the latter by fatigue and depressing emotions. Possibly the endocrine system was responsible for the "fatigue" cases. The psychogenic group included the type known as the "visceroptotic" or "abdominal" woman. The gastric mucosa had no sensibility normally, but it was difficult to explain all the forms of gastric pain without assuming at any rate that under certain conditions impulses originating in the stomach reached consciousness.

The symptoms were rarely severe; discomfort, fullness, flatulence, and nausea. They varied greatly from day to day and were not much influenced by diet. Wasting was the result of over-dieting only. The presence of real pain negatived a diagnosis of nervous dyspepsia. Diagnosis could only be made by exclusion, based on a careful history, and thorough physical examination, radiography, and test-meals. Treatment should aim at removal of the cause, but might have to be symptomatic until the cause was removed, or if it was irremovable. The hypersthenic type needed bland diet, antacids, bromides, and belladonna. The asthenic type needed a dry diet, tonics, and physiotherapy. In the fatigue cases rest was an obvious measure. The real difficulty lay in the treatment of the psychogenic cases, for which no measure seemed to be even reasonably satisfactory.

THE PSYCHOLOGICAL POINT OF VIEW.

Dr. T. A. **Ross** said that more than half his psychoneurotic patients suffered also from dyspepsia. He agreed with Dr. Hutchison's classification. He thought that many of the psychogenic type were really psychotics; patients with a fixed idea which the physician was not allowed even to approach. The psychoneurotic might not believe what the doctor said but would give him a hearing and be interested. The "abdominal" woman would not hear of any diagnosis which did not involve physical treatment. Another mark of the psychotic was that she was greatly helped for the time by any form of treatment sufficiently painful; she resembled the patient with self-accusations that had not been made conscious who desired punishment.

He thought that the fatigue cases might often be accompanied by anxiety, which was not always easy to discover. Often the full "voltage" was there but the patient was afraid to use it. Both exhaustion and dyspepsia were symptoms of a previous common factor of anxiety. The treatment might be radical or palliative. A palliative psychological treatment was well worth while; it should consist of discussion of current anxieties. One of the most important anxieties was diet; if the patient could be made to see that practically all foods offered in an ordinary household were digestible he would probably be able to digest them. His financial difficulties should also be discussed. Dieting and drugging a dyspeptic relieved him of responsibility and gave him support, and thus helped his trouble psychologically. All palliative treatment boiled down to relief of responsibility. Radical treatment involved some form of analysis, which was often impracticable and yet which often arose out of a palliative treatment. Patients would sometimes deny anxiety for a very long time. The aim of psychotherapy was less the relief of symptoms than ascertainment of the cause of anxiety.

Dr. H. **Bedingfield** regarded nervous dyspepsia as an entity to be differentiated from the physiological protective dyspepsia produced by fatigue or mechanical causes or by chronic intestinal invalidism. The digestive symptoms (apart from infancy) did not usually appear until after puberty and there was no failure of energy or permanent disturbance of nutrition, while resistance to infection appeared to be actually increased. All these features distinguished nervous dyspepsia from that of the chronic intestinal invalid. The condition was as common in men as in women, but in women the symptoms usually appeared between 18 and 20, and in men between 25 and 26. Pain, if present, was more often felt in the upper abdomen. The cases fell into two groups: one in which the symptoms were intermittent and the other in which they persisted, accompanied by signs of emotional and nervous instability. Physical examination revealed nothing.

The cases could only be explained by regarding man as composed of two personalities: the old, vegetative personality and the young, cortical mind. The trouble could always to traced back to early infancy. The integration of the cortical personality was essential for health. In infancy disorders of the cortical personality manifested themselves through the nutritional functions; the urge to feed and satiation were antecedent to the dawn of mental life, and were present to reflect any disturbance brought about by unsuitable diet, congenital defect, or lack of harmony in the development of cortical personality. Only the third factor played any part in the ætiology of nervous dyspepsia. The gastro-intestinal tract was the only psycho-sensory mechanism available to express any conflict between the infant and its environment. At every stage of development there must be compromise between the ego and the instinctual urge. Compromise might be brought about by sublimation; by absorption, after reaction of the ego with a feeling of guilt; fear or anxiety, or by repression. In the second case the individual became timid or cautious and avoided situations that reconstituted the early conflict. When he had to face them he reacted on the primitive level, and suffered from anorexia, nausea, vomiting, and constipation. Reflex disturbances might be set up elsewhere in the alimentary tract if the symptoms were not dealt with satisfactorily at first. The repressed case presented a more difficult problem; in severe cases analysis was the only treatment. The severe cases of "chronic abdominal woman" were undoubtedly psychotic; but the borderline was a very fine one between maladaptation due to inferiority and use of inferiority as a psychotic symptom.

THE "DIET" FALLACY.

Dr. J. A. **Ryle** said that many factors were involved: constitutional, environmental, and habitual. He would add to Dr. Hutchison's list dyspepsias largely due to nervous tricks such as aerophagy. Flatulence was a very prominent symptom in nervous dyspepsia. Perhaps aerophagy was rather a symptom of the anxiety state than a cause of dyspepsia, but occasionally it seemed to be the sole trouble and could be cured at a sitting. The chronic anxiety patient nearly always suffered from it. The situation should be explained to the patient, and other anxiety factors should be sought. Mis-treatment usually took the form of dieting. Dyspepsias were not due to food in the majority of cases. Patients gradually eliminated articles of diet and became thin. They resembled patients with anorexia nervosa. Doctors would do their patients more good if they encouraged them to eat more rather than less.

Dr. W. **Langdon Brown** spoke of war cases of atonic dilatation, due merely to sympathetic inhibition from anxiety states, and thought there was probably some nervous factor in addition to fatigue in cases of atonic dilatation. Many cases of "atonic dilatation of the stomach" were not atonic at all. He strongly supported Dr. Ryle on the matter of diets. This was a generation that sought after a diet and would not be satisfied until it got a diet. Whether it was right to take some of the responsibilities away by giving a diet was doubtful. Many ideas about diet had no scientific sanction but had become incorporated into a tradition. He also agreed with Dr. Ryle about the importance of air-swallowing. The worst case of the "chronic abdominal woman" type in his experience had been a man.

DISCUSSION.

Dr. **Parkes Weber** declared that almost every case labelled "nervous dyspepsia" should be regarded as an exaggeration of the normal nervous protective reactions essential to health and longevity. A busy man who tried to take a heavy meal hurriedly between a busy morning and a busy afternoon might vomit on the journey back to work; he should not try to do it, and would pay for his mistake by abdominal disease and early death. Those who were protected by nervous reactions were more likely to live to healthy old age.

Dr. A. E. **Blackburn**, speaking as a general practitioner, said that the commonest form of dyspepsia in infants and adults was intolerance of fats. There was a threshold for the stomach as for the kidney, both in volume and in form of food. Fat was the commonest thing beyond the threshold of nervous people.

Dr. F. **Stolkind** described cases in his experience, showing the influence of the mind on the body.

Dr. **Mirvish** spoke of the difficulty of assessing functional and organic causes. Many cases now regarded as organic had for many years been labelled "functional." Gastritis was now known to be very common. Patients had dull, boring pain and an area of localised tenderness in the epigastrium, and in a nervous individual many symptoms and signs would be superadded. Only the psychogenic category could strictly be called "nervous dyspepsia."

Dr. **Hutchison** replied. He thought that finicking menu-writing was quite unnecessary, but that certain simple rules should be impressed on the patient. The liver rather than the stomach was at fault in cases of fat intolerance.

REPORTS AND ANALYSES

STRENGTH OF WHEAT.

(ENERGEN FOODS CO., LTD., ENERGEN WORKS, WILLESDEN.)

"Strength of Wheat" which is a light and hard gritty powder, claims to be a perfect food for growing babies, children, adults, and invalids. It is prepared by stirring the desired quantity into boiling water to which a little salt has been added and cooking the mixture for a few minutes. It is then served with cream or milk.

When analysed the following results were obtained:

Moisture per cent.	12·86
Ash ,, ,, ...	0·42
Fat ,, ,, ...	3·10
Protein ,, ,, ...	16·45
Carbohydrates ,, ...	67·17
Caloric value per lb.	1680

If compared with the composition of ordinary wheaten flour it will be noted that the fat and protein contents are materially higher.

When made according to the directions given the "Strength of Wheat" food is attractive to the palate and it is obvious from the figures above that it possesses a high nutritive value.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt. H. H. Fisher to be Surg. Lt.-Comdr.
Surg. Lt. C. H. Birt to *Victory*, for R.N. Barracks.

ROYAL ARMY MEDICAL CORPS.

ARMY RESERVE OF OFFICERS.

Lt. Cols. E. G. Ffrench and A. C. Osburn, having attained the age limit of liability to recall, cease to belong to the Res. of Off.

Capt. E. E. Lightwood to be Maj.

TERRITORIAL ARMY.

Capt. J. N. Atkinson, R.A.M.C., to be Divl. Adjt., 44th (Home Counties) Div., vice Maj. W. H. A. D. Sutton, R.A.M.C., who vacates the appt. on completion of tenure.

Maurice Ellis (Rydal Sch. Contgt., Jun. Div., O.T.C.) to be Lt.

INDIAN MEDICAL SERVICE.

Col. W. M. Houston retires.

ROYAL AIR FORCE.

Flight Lt. T. J. D. Atteridge is promoted to the rank of Squadron Leader.

Flying Officer C. M. Leckie relinquishes his temporary commission on completion of service.

REVIEWS AND NOTICES OF BOOKS

Dairy Bacteriology.

Second English edition. By ORLA-JENSEN, Dr. Phil., D.Sc., Professor of Technical Biochemistry in the Royal Technical College, Copenhagen. Translated from the Danish by P. S. ARUP. London: J. and A. Churchill. 1931. Pp. 198. 18s.

Bacteriological Control of Milk.

A Practical Guide for Media Preparation and Milk Testing. By A. G. HOUSE. Printed for the National Institute for Research in Dairying at the University Press, Cambridge. 1931. Pp. 59. 3s. 6d.

Dr. Orla-Jensen states in his preface that he has omitted every aspect of dairy practice which has no bacteriological interest, and has dealt with no bacteriological problems which have not some bearing on dairy practice. The resulting work is comprehensive and valuable. Excellent accounts are given of the souring of cream, the normal bacteriology of butter and of cheese, and the bacteriology of defects in these different products. Particularly useful are the careful explanations of bacteriological actions; the author shows how these should be used to guide dairy practice, and points out also the bacteriological changes which are the basis of successful empirical methods used in dairy work. The account of the different types of bacteria and their characters is inadequate; more complete descriptions of the various strains associated with bacterial changes are needed. The author's longer work on "The Lactic-Acid Bacteria," published in 1919, is not readily available, and the meagre descriptions given here are insufficient for purposes of identification. The account of the cleaning and the production of milk is interesting, but in many respects inferior to that given in many English books. The advantages of steam sterilisation for milk vessels are not stressed as they should be. The bacterial and chemical changes caused by heat treatment, including pasteurisation at various temperatures, are considered, but not in great detail. To one conclusion, that heating milk to 60° C. for 10 to 20 minutes kills all tubercle bacilli, many experts in this country will not subscribe.

On what may be called the public health aspects of milk the volume is inadequate. For example, tuberculosis is discussed only superficially, no adequate account being given of the bacteriology of bovine mastitis or its relationship to human disease; bacteriological means for judging the purity of milk and as a measure of control are not really discussed nor are the satisfactory procedures described. On the other hand, a clear description is given of certain tests, including the leucocyte, catalase and peroxidase tests, designed to show whether high temperature pasteurisation has been performed; the amylase test and a cremometric method devised by the author to show whether holder pasteurisation has been carried out are also noted. These tests may be of value for particular purposes. Prof. Orla-Jensen lays great stress upon the fermentation test and upon the reductase test for judging the purity of milk, particularly in connexion with dairy products; these tests are described in detail. The reductase test is widely used for milk grading in Denmark.

The work is largely a record of Danish work, and of the author's own experience, although American and Continental reports are utilised to a considerable extent. The volume undoubtedly loses by the entire omission of all work done in Great Britain—we have found but one reference to work done in this country—but none the less it is a valuable addition to the literature of the bacterial changes in milk and milk products, although it cannot be recommended as a guide upon the control of the milk-supply and its safeguarding from infection with pathological bacteria.

The practice by large milk-distributing companies of employing persons, who have received a special training in dairying, to control the bacteriological quality of the milk from the farm, and of the milk delivered to the consumer, has increased in recent years. In the work of training these persons the National Institute for Research in Dairying at Reading has been prominent among the dairy colleges. It is appropriate that a small hand-book, by Mr. A. G. House, which has a foreword by Dr. Stenhouse Williams, should be issued from that institute as a guide to these workers. The book is not a treatise on the bacteriology of milk; it does not deal with the control of milk in the way its title would suggest, but it gives details of the preparation of the various media required and describes the methods of estimating the bacteria in milk generally practised in this country. No mention is made of the direct estimation of bacteria in milk by the method of Breed or of the little plate method of Frost. Pathogenic organisms are not considered from any point of view. The reductase test of Barthel and Orla-Jensen, which is largely used for milk in Denmark, particularly in relation to butter making, and to a small extent in this country, is fully described; this is an easily applied test of keeping properties, though it gives but a rough measure of the bacterial content. The scope of the book is limited, but it provides trustworthy guidance for those engaged in the control of the quality of milk.

The New Conceptions of Matter.

By C. G. DARWIN. London: *Bell and Sons.* 1931. Pp. 192. 10s. 6d.

IF ordinary people, incapable of mathematical thought, want to understand the invisible structure of the world described by physicists, they must almost always translate the description into some kind of model. Atoms were easy enough; they could be represented as little round masses packed together like a pile of billiard balls. There was no more difficulty when the atom was dissected into protons surrounded by electrons. But when electrons and protons became charges of electricity it was hard to turn them into anything which in imagination was *tangible*. Prof. Darwin deals here with the further complications which have arisen. It appears now that an electron may be at once a group of waves and a particle; one cannot dream of a model of anything like that, nor does it seem to be conceivable except as a mathematical expression. To present ideas such as this in a popular and intelligible form is obviously *difficult*; we congratulate Prof. Darwin on his success. Among many other things, it is interesting to find that physicists have come to the old conclusion of biologists—that you cannot investigate a thing without altering it.

on qualitative evidence only. The substance, unlike œstrin, appears to be neutral and fully saturated, taking up no bromine when treated with this reagent. It is an interesting observation that, but for the formation of the mixed crystals of the oxime with the impurity which accompanies it in the urine, the isolation of so small a quantity of the substance would hardly have been possible. More remarkable is the close chemical similarity which this study has revealed between the male and female sex hormones. It has often been observed that a very slight change in chemical constitution may produce a fundamental physiological distinction.

BIOLOGY AND CIVILISATION.

Dr. H. H. **Dale** thinks that the development of civilisation in relation to scientific knowledge has been a little one-sided, and in the Norman Lockyer Lecture which he gave on Tuesday for the British Science Guild in the hall of the Goldsmiths' Company he expressed the view that biology had received less than its fair share of attention in comparison with chemistry and physics. Science, he says, has been busy making the world a better and more comfortable place for man to live in; ought it not to pay more attention to making man a better organism to occupy the world? Why not indeed. Let us begin with education and see that an intelligent appreciation of the fundamentals of biology is regarded as part of the necessary equipment of any educated man. At present there is a heavy bias in favour of chemistry and physics, and with the help of an extraordinary collusion between schools and universities, an eminent man of science on its physical side, who has passed through the normal curricula, may have preserved an aloofness from biological knowledge, of a degree quite impossible to the normally educated biologist in respect of physics and chemistry. The various disciplines of knowledge are their own interpreters, and the result of this is that highly trained scientists may be completely ignorant of the biological point of view, and think of animals and plants (if they think of them at all) as nothing but examples of applied chemistry and physics. What they think when their own leaders tell them that the units which compose the universe are conceived on a biological plan we do not know. Dr. **Dale** does not actually mention any immediate reform at the Universities; we would venture to suggest that in preparation for the biological education of the man in the street it would be easy to insist that no one has his scientific knowledge guaranteed by a B.Sc. degree unless he knows what biology is about.

Next let us spread abroad the fact that many of man's direct and obvious needs can be satisfied only through biological knowledge. The problems of parasitic diseases are at bottom problems of systematic descriptive and œcological zoology and botany. If we want to understand parasites we must be able to look at them from their own point of view, and see them as parts of a great corporation of live organisms. To invent chemicals to cure sleeping sickness is well enough, but it is as nothing compared to knowing the tse-tse fly and his varied kinds so well that we can guide his life and prevalence at will. And the trypanosome himself presents the old systematic problem: is there one species or several, and how far can the superficially distinct forms change one into another? It comes in rather a new form and will have to be settled by criteria which are at present unfamiliar, but it is the same problem that **Linnæus** set out to solve in the "Systema Naturæ." So too we have learned lately that some of the still outstanding difficulties in the epidemiology of plague can be explained by the confusion of two sorts of fleas so like one another that it needed the utmost refinements of diagnostic entomology to separate them.

Now questions such as these cannot with profit be approached ad hoc; we must come at them from a biological background and in a biological atmosphere. And how difficult it is for even the biological secretary of the Royal Society to achieve this Dr. **Dale** shows us himself when he trips over his own text and says that our methods of house heating are more primitive and less effective than the Romans had 2000 years ago. Less effective they may be if they are measured by the chemist and physicist in terms of therms per kilo of fuel; less effective they certainly are not if the biologist evaluates them in terms of radiant heat and moving air. And out of this biological foundation, what are we to do for man? We are glad to find no catchpenny recipe for "eliminating the unfit." The problem, as the lecturer said, is much more important and difficult than that. "Nobody," he says, "can suggest that, with our present knowledge, we can predict even the initial stages of a strictly scientific application of genetic principles to the problem of improving the human species. He would be a bold man who would attempt to define the type or types of human beings which a higher civilisation will need, or the policy to be adopted to attain them." We may be able to do so if we cultivate biology as we should.

RADIOGRAPHY OF THE NASAL SINUSES.

The use of radiography in the diagnosis of disease of internal organs has made great progress during the last few years. Until lately, however, the technique of examining the accessory sinuses of the nose with X rays has not kept pace in the general advance. Even in the early days of radiology the method was useful to the rhinologist for the recognition of inflammation in the antrum or frontal sinus. At that time all it was expected to disclose was a relative radiopacity of the suspected cavity, together with some blurring of its outlines; or perhaps it would be used to decide whether inequality of the frontal sinuses on transillumination was due to asymmetry of these cavities or to disease. And here or hereabouts, indeed, its application has rested. Until quite recently radiography had not succeeded in furnishing a reliable diagnosis of disease of the sphenoid or posterior ethmoid sinuses, nor could it indicate the condition of the mucous membrane or fluid contents of the large anterior sinuses.

Comparison of the brightness of one antrum with the other, although useful, has the disadvantage that the relative opacity may be due, not to disease, but to asymmetrical density of the bony walls. Moreover, past inflammation, by leaving a thickening and fibrosis of the lining of a sinus, also causes a relative opacity which may be a source of error. In most cases of sinusitis the diagnosis can be made by clinical methods—by tracing the nasal discharge to its source, by observing signs of inflammation of the appropriate part of the nasal mucosa, or, when necessary, by exploration of the suspected sinus. But, as we remarked not long ago,[1] it is now recognised that there is a group of cases with chronically infected mucous membrane, or with polypoid degeneration of the lining, in which rhinological examination is negative, and which return a clear fluid when washed out, although bacteriological examination of this lotion will give a growth of pathogenic organisms. A more accurate and delicate radiological technique has long been needed for the examination, at any rate, of the more obscure cases of sinusitis, and it now appears to be forthcoming. In an interesting paper, written from the rhinologist's point of view, Mr. R. Graham Brown,[2] of Brisbane, acknowledges that some years ago he looked upon radiographic examination of the sinuses as of small assistance, but improvement has come as the result of careful technique—especially from the use of standardised positions and of soft rays—greater experience in interpreting the films, and closer coöperation with the radiologist. Radiograms accompanying his paper show polypi and swellings of the mucous membrane which are clearly differentiated from the "air-shadow" of the antral cavity. He does not describe the details of the methods employed, but this lacuna is well filled by papers by Dr. Richard Mittermaier,[3] of Freiburg, and Dr. H. K. Graham Hodgson.[4] All three writers agree that filling the sinuses with lipiodol, or other radiopaque substances, is unnecessary, since mucosal swellings and polypi can be well demonstrated without it, and it has the further disadvantages that it involves puncture of the antrum, and that it is misleading when the air is not completely displaced. They also agree in examining the patient in the upright posture, in which the respiratory movements are less conveyed to the skull than in the prone position, and (what is more important) the presence of secretion, at any rate in the antrum, can be proved by seeing a "fluid level" in the cavity. Dr. Graham Hodgson rightly lays great stress on the necessity of standard positions for all cases, and he takes radiograms in six different positions so as to include all the accessory sinuses. These positions are chosen in such a way that the cavity under examination is kept clear of the denser bony shadows, and so that these are projected in such a way as to bear a constant uniform relationship one to another. The vertical, or "vertico-mental," position is used for viewing the sphenoidal sinuses projected through the floor of the mouth, and a novel position, the right and left oblique views, for projecting the posterior ethmoidal cells clear of confusing shadows.

These papers will repay study by rhinologists and radiologists, but enough has been said to show that the technical development of radiography has reached a stage where it can be of real assistance in the recognition or exclusion of disease of the sinuses.

MAUDSLEY.

The twelfth Maudsley Lecture was delivered before the Royal Medico-Psychological Association on Tuesday last by Sir Hubert Bond, a Senior Commissioner of the Board of Control. If the audience expected a disquisition on psychiatric problems or on the responsibilities of the State towards the insane they were disappointed, but assuredly were fully compensated by what they got instead. For Sir Hubert decided to recall to them what manner of man it was in whose honour the lecture he was giving had been founded, relying mainly on Maudsley's "own bringingsforth" for the estimates expressed. The choice of subject was excellent, for Maudsley has been dead some 14 years, and that is a lapse of time during which it is particularly likely for memories of great personalities to become shadowy and inaccurate. Of the great man who has passed from the stage for that period, while the recollections of his seniors are not vivid, those of his juniors depend upon report. The generation of younger men are working in accord with his teaching and inspiration, but will be without the influence of contact. A little later and the great man becomes an historic character; researches are made into his life-history and his written works to ascertain from external and internal evidence what he did and how he came to do it. Maudsley is one of those men who deserves, and will receive this pious meed of attention in due course; but in the meantime Sir Hubert Bond has supplied us with a fine testimony to his qualities, which if mainly derived from writings, still has the additional charm of a personal record.

Maudsley is esteemed as a learned and individual philosopher, and Sir Hubert Bond's eloquent essay constituted a proof that he rightly occupied this position. And his love of wisdom was manifested alike by a complete unity of purpose but an intention to advance that purpose by diffuse and diverse studies. Maudsley appears to have adopted inquiry into the problems of mental disease as the object of his professional career somewhat by accident, but having entered upon that inquiry he pursued it devotedly and without intermission to the end of his life, bringing to bear upon it lessons drawn alike from intensive personal application and from a wide study of the precepts of philosophy. It was, said Sir Hubert, in order to comply with a regulation laid down at that time by the Indian Medical Service, that candidates for commissions should attend the practice of a mental hospital, that MAUDSLEY obtained a temporary residential post at the Wakefield Mental Hospital after a short period of similar work at Brentwood. He found in psychiatry at once an absorbing pursuit. At Wakefield the authorities, recognising his worth, invited him to remain, and the intention to enter the I.M.S. was changed; and within the year he was selected, although only 24 years of age, to become superintendent of Cheadle Royal. There he made his start as an author, and must at once have felt that he had within him the gifts of imagination, intuition, and lucidity, which throughout the rest of his life made his literary work famous. The first article from his pen which the lecturer was able to trace appeared in 1859 in the *Journal of Mental Science* and was entitled the "Correlation of Mental and Physical Force; or, Man a Part of Nature," and it will be seen from this title that the essay formed a prelude to his famous "Physiology and Pathology of the Mind." This work was published originally in one volume in 1867, and was at once recognised as a great contribution to philosophical literature, of which we have practical evidence in the fact that the volume on its issue became a text-book for purposes of Classical Greats at Oxford.

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[1] The Lancet, July 18th, p. 138.

[2] Jour. Laryng. and Otol., Oct., 1931, p. 670; Nov., 1931, p. 736.

[3] Ibid., Oct., 1931, p. 661.

[4] Ibid., Nov., 1931, p. 729.

How for the rest of his long life MAUDSLEY dwelt upon the problems of insanity, illustrating their complexity, and elucidating their difficulty by personal records and beautiful pen, was set forth by Sir HUBERT BOND with full references, and he closed with the story of the Maudsley Hospital. The great project, which may well have been germinating in MAUDSLEY's mind for many years, took actual shape in 1906, when he first spoke to others of the good results that might follow the founding of a centre for the study and treatment of recent or undiagnosed mental cases. Then in 1907 he offered to the London County Council the sum of £30,000 if they would build a hospital for the study of early cases of mental disorder. He stated as the principal objects of such a hospital the obviating of sending such patients to asylums, the promotion of research in the pathology of insanity, the improvement in provision for treatment, and the erection of an educational centre. As is well known, much time elapsed before the Maudsley Hospital became a reality, but during its short life it has amply justified the prevision and generosity of its founder. The full text of Sir HUBERT BOND's lecture will be found in the next issue of the journal of the Royal Medico-Psychological Association, and all who read it will learn how amply the memory of MAUDSLEY deserves to be kept evergreen.

ANNOTATIONS

GENERAL MEDICAL COUNCIL: CHANGE OF PRESIDENT.

AT the opening of the present session of the General Medical Council, Sir Donald MacAlister resigned the position of President which he has occupied for 27 years. He has discharged the onerous and delicate responsibilities of the post with a zeal and efficiency that have commanded universal admiration. He has maintained the dignity of the Council before all men; he has never allowed his sense of professional responsibility to be blunted by ill-informed criticism, but equally he has never forgotten that the Council was instituted in the public interest primarily, and that the public weal must be the first consideration in its policy. To the universal satisfaction Sir Donald is retaining his seat on the Council. The Council proceeded to elect Sir Norman Walker to succeed Sir Donald MacAlister. Sir Norman, who is President of the Royal College of Physicians of Edinburgh, has for many years sat on the Council as the direct representative for Scotland, and throughout the whole period has been recognised by the Council, and also by the medical profession, as one of its strongest members. He is intimately acquainted with the working of the body, and especially anxious to maintain due relations between it and the Dominions overseas in the interests of the national good.

THE TOXINS OF INVASIVE BACTERIA.

ONE of the most striking of recent changes in the conception of bacterial infection has been in respect of the invasive or pyogenic group. A very great deal remains unexplained; but in the case of streptococci, pneumococci, and staphylococci the importance of exotoxin has become increasingly evident. It is obvious that the exotoxins procurable from these species are not exclusively responsible for all the symptoms of infection; antitoxic therapy is not the sure defence in pneumonia that it is in diphtheria. But animal experiments have shown in these three cases that exotoxin and antitoxin exist, and it is reasonable to suppose that antitoxin therapy may turn the balance between life and death in certain cases. The latest work concerns the staphylococcus and derives its inspiration from F. M. Burnet, who first emphasised the importance of staphylococcal toxin in connexion with strains from the Bundaberg disaster. The paper from the London Hospital, appearing at p. 1180, is the first in this country dealing with the therapeutic action of staphylococcal antitoxic serum, and indicates in a small series of cases that, as was anticipated, the method in one of limited but real efficacy.

The toxin itself has certain peculiarities; in particular its rapidity of action on intravenous injection, leading to death in ten minutes, separates it from most other toxins. Its distinction from hæmolysin and pigment is of interest, but its invariable association with hæmolysin makes it analogous to the streptococcal toxin. Bacteriologists are accustomed to grade the pathogenicity of staphylococci in terms of the pigment, and the recognition of toxin in non-pigmented strains should make them reconsider their position. The effect of toxin in sensitising animals is of great interest, since the phenomenon of hypersensitivity to vaccines has been observed by many workers. The question must be raised how far vaccine therapy may really be active immunisation with toxin, and whether filtrates might not be equally efficacious. Work on this line was, in fact, initiated some years ago by L. S. Dudgeon, and reactions were in certain cases very severe.

It must be emphasised that, while the production of antitoxic serum on commercial lines is under way, this serum is not yet available for general use. This emphasis is the more necessary because so-called bactericidal sera are available and have not proved a success. There is wide confusion of thought on this point, and many practitioners are apt to employ "polyvalent antistreptococcal serum" when they really should employ, and mean to employ "Dick serum" or "antiscarlatinal serum," which is antitoxic. At present the main trend of serum therapy is along antitoxic lines, and this work at the London Hospital, which has been confirmed on a smaller scale by unpublished work at St. Thomas's Hospital, deserves attention. This new serum is not a miraculous remedy, but it is the first specific therapeutic agent in staphylococcal infection which has stood the test of animal and clinical experiment.

VARICELLA AND HERPES.

MANY observations connecting chicken-pox with herpes zoster have been recorded. An interesting addition to the collection comes from Dr. P. J. Braslawsky,[1] who describes an outbreak in a Kief hospital. In May, 1929, a little girl of 8, convalescent from scarlet fever, developed a typical thoracic herpes but experienced no discomfort with it. She had had varicella two years before. In the same ward with her were 11 children suffering from scarlet fever complications or convalescent. In order to test the theory that chicken-pox could be contracted by infection from herpes, seven of them who had not had chicken-pox were put in beds adjacent to that of the herpes child, and all developed typical chicken-pox with a greater or lesser rise of temperature. The incubation period was from 16 to 18 days from the time of appearance of the herpes on the first patient. The ward was completely isolated from outside; there had been no chicken-pox in the hospital for many years, and the children who developed it had all been isolated for more than 30 days on account of their scarlatina. By what can only be regarded as a coincidence, another child, in a scarlatina-diphtheria ward, developed an abdominal herpes about the same time. There is reason to think that she caused varicella in two other children, but in this case the experiment was less certainly controlled. A whole series of other children subsequently caught chicken-pox from these first nine, and the epidemic lasted nearly three months and affected 34 cases. The disease was typical throughout. The frankly scientific attitude of experimentation taken by those in authority at this hospital will hardly appeal to workers in this country. Nevertheless, now that the thing has been done, it cannot be denied that this outbreak provides a formidable argument for those who believe in the identity of varicella and herpes. The cases recorded in this country are so often open to doubt of the real source of infection that there has been room for scepticism despite the force of their numbers. Here is a control experiment under the ordinary isolation conditions of a fever hospital. Braslawsky suggests that many unexplained epidemics of chicken-pox in institutions may arise from isolated cases of herpes which have been overlooked. He also urges that herpes should be regarded as an infectious disease.

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[1] Presse Méd., Nov. 14th, p. 1671.

CEREBRO-SPINAL FEVER IN THE ALDERSHOT COMMAND.

THE details of the outbreak of cerebro-spinal fever in the Aldershot Command during the first seven months of 1931 have now been recorded by Major C. Armstrong and others.[1] The total number of cases was 34, of which 13 were fatal—a mortality of 38 per cent. Of the 34 cases 24 were diagnosed bacteriologically and 10 clinically. Discussing the general diagnosis of the disease, the authors of the report emphasise the fact that influenza may simulate closely cerebro-spinal fever. If the cardinal symptoms of headache, vomiting, stiffness of the neck, and a definite or even a doubtful Kernig's sign are present it is imperative to perform lumbar puncture for diagnostic purposes. It is also advisable to carry out both a total and differential leucocyte count of the blood as soon as possible, for a high leucocytosis is almost a rule in cerebro-spinal fever; this test, therefore, is useful in differentiating the latter from such conditions as typhoid fever and influenza. In the opinion of Major Armstrong and his colleagues it is useful to test at the bedside the cerebro-spinal fluid withdrawn at the initial lumbar puncture, to find out whether it reduces Fehling's solution—especially if the cerebro-spinal fluid is clear and it is doubtful whether serum should be administered or not. The Fehling's solution is diluted 1 in 4 with distilled water and three times as much cerebro-spinal fluid is boiled up with it. If there is reduction of the Fehling's solution (providing the cerebro-spinal fluid is clear and the clinical signs indefinite) a strong point against the diagnosis of cerebro-spinal fever is made and serum might be withheld. If there is no reduction of Fehling's solution and the symptoms are suspicious, serum should be given even if the cerebro-spinal fluid is clear.

Twenty-four of the cases were treated with polyvalent antimeningococcal serum from various manufacturing firms; of these cases 13 died. Type I. serum, prepared by the Lister Institute from strains of meningococci isolated earlier in the outbreak, was then used in the remaining ten cases, none of which proved fatal. In comparing the two series of cases—namely, those treated with polyvalent serum and those treated with univalent Type I. serum—fulminating cases are excluded. Of the remainder 90 per cent. in each series were either hyperacute or ordinarily acute. Those treated with polyvalent serum showed a mortality of 42 per cent., while no deaths occurred among the cases receiving Type I. serum. In this connexion, it is to be noted that the laboratory investigators reported that they found no agglutinins for the local strains of meningococci in three brands of polyvalent serum. These figures greatly favour the Type I. serum, but among those treated with polyvalent serum were the first 23 cases that occurred. In most outbreaks of the disease the initial cases are usually more severe than the later ones, a point for which some allowance must be made in comparing the figures. The serum was administered intrathecally in all cases, and almost always intravenously as well. The dose varied from 10 to 60 c.cm. according to the amount of cerebrospinal fluid withdrawn, the condition of the patient, and the severity of the case. In the general management it was found that morphia was necessary for most patients to ensure rest and lessen pain. Calcium lactate (grs. 10 t.d.s.) appeared to have little or no effect in preventing serum sickness which developed in most cases of the series. There were no serious complications such as would render any patients who recovered permanently unfit for military service. During convalescence, two negative nasopharyngeal swabs were required before the patient was discharged from hospital. In the laboratory investigations meningococci were isolated in 18 of the 34 cases. In 13 of these the coccus was of Type I. and in one case Type II.; in the remaining four cases the type was not identified. The culture medium used was pea-trypagar taken to the bedside in a hot box, the fluid being plated direct; at the same time a quantity of cerebro-spinal fluid was taken in a sterile test-tube and kept at 37° C. until placed in the incubator. From the latter specimen cultures were made at intervals of 24 and 48 hours and often proved positive.

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[1] Armstrong, C., Fotheringham, J. B., Hood, A., Little, C. J. N., and Thompson, T. O.: Jour. Roy. Army Med. Corps, November, 1931.

From Jan. 1st to July 31st 130 meningococcal carriers were admitted to hospital for treatment. None of them developed cerebro-spinal fever. Swabs were taken every fifth day, and the patients were discharged to duty after one negative swab. The average number of days under treatment of 99 cases discharged from hospital up to July 31st was 11·3. The majority of carriers were treated by nasal douching and gargling twice daily with a solution of potassium permanganate in normal saline immediately followed by 20 minutes' exposure in a special room where a 1 per cent. zinc sulphate solution was vaporised by means of a Levick's spray. A small minority of carriers were treated with the permanganate solution three times daily without any zinc sulphate inhalation. A small number received no treatment. The average stay in hospital of those treated with permanganate douching and zinc sulphate inhalation was 11·2 days; those treated with only permanganate solution 11·4 days, and those who received no treatment 11·7 days. Carriers were sought for from two sources—namely, contacts of cases and the general population of barrack room. The total percentage of carriers among 1032 contacts was 8·7. During the first two months of the year the percentage was only 4·7, while from mid-April until the end of July it was 14·1. Two known carriers developed the disease, one six days after the first nasopharyngeal swab and another later on the same day that the swab was taken.

From the administrative standpoint noteworthy features of the cases were: 1. The predominance of influenza as a predisposing cause. Nearly 15 per cent. of the cases had had influenza a few days or weeks before the outset of meningitis. There had been a very extensive epidemic of influenza and few of the personnel of the Aldershot Command could have escaped infection in either a mild or a severe form. 2. The widespread and irregular incidence. Cases show little definite sequence and often little connexion, but occurred irregularly throughout the military population. As in most recorded military epidemics, the disease tended mainly to affect recruits, 66 per cent. of the cases having had only one year's service or less. For practitioners in general the main lesson to be learnt or emphasised from the outbreak is the importance of "typing" the meningococci responsible, and the administration as early as possible of serum prepared from the homologous type strain. In dealing with an epidemic where the predominant type is already known, the homologous type strain serum should be given from the first. In sporadic cases or at the beginning of a future outbreak, the only course is to give polyvalent serum of undoubted potency until the type of meningococcus is determined. As recovery of the organism is often no easy matter, every source—cerebro-spinal fluid, blood, and nasopharynx—should be investigated as early as possible. Also, a procedure which has been strongly advised by previous writers is emphasised—i.e., the necessity of incubating some of the cerebro-spinal fluid in addition to plating it direct on a culture medium. Frequently the cerebrospinal fluid thus enriched will yield a positive culture after one or two days when direct cultures are negative.

IMPORT DUTIES ON HOSPITAL EQUIPMENT.

THE Abnormal Importations Act, which received the Royal Assent on Nov. 20th, empowers the Board of Trade to make Orders imposing customs duties up to 100 per cent. ad valorem on all classes of foreign manufactured goods imported into this country during the next six months. As the title of the Act implies, its object is to check the importation of manufactured goods in excessive quantities. Within a few hours of the passing of the Act, the Board of Trade made the first Order. This subjects to a customs duty of 50 per cent. ad valorem 23 separate categories of articles, and it is probable that Orders will be made in rapid succession during the next few weeks.

Among the articles contained in the Schedule to the first Order are many which form part of the equipment and utensils required by hospitals and all these articles became subject to an import duty on Nov. 25th. Running rapidly through the Schedule we note that pottery, sanitary ware, glazed wall and hearth tiles, and domestic glassware are the four items which begin the list. Articles coming within these categories are used in great quantities by hospitals. The next item is metal furniture, but bedsteads and "aseptic hospital furniture" are exempt. The next item is cutlery, but surgical knives are excepted; scissors, on the other hand, are included, so that instead of the duties under the Safeguarding of Industries Act, which expired on Dec. 21st, 1930, this is a new duty of 50 per cent. on scissors. Large quantities of German scissors are supplied to hospital nurses, and scissors will probably be dearer in due course. Another item in the Schedule is gloves, but rubber gloves are excepted, the probable reason for this being that British makers of rubber gloves are said to be well able to compete with Continental and American makers. There are many other categories of goods which are now subject to duty on importation which are bought by hospitals, such as typewriters and electrical carpet sweepers. Also a comprehensive range of toilet preparations such as tooth paste, smelling salts, lotions and ointments, denture bowls, and nail polishers are contained in the Schedule.

Important as may be the effect on hospital bills of the application of a high rate of customs duty to the articles in the Schedule to the first Order, it may well be that subsequent Orders will also apply to other articles commonly used by the medical profession. For instance, Mr. Runciman, in the course of his speech, specifically mentioned surgical instruments as one of the categories of articles which are being imported in abnormal quantities. It should not come as a surprise, therefore, if an early Order is made subjecting some kinds of surgical appliances to an import duty. It must also be remembered that the Board has power to apply the Act to every class of foreign manufactured articles, and if this power is used the effects of the Act may be far-reaching. Nevertheless there ought to be no immediate advance in the prices of any of the goods covered by a Board of Trade Order. The very fact that this article and that are made subject to import duties is evidence that there is an abundant supply—a superabundant supply of such articles in this country. Any attempt at profiteering should be discouraged vigorously; if buyers of hospital equipment are quoted substantially higher prices for goods affected by the Act they should require ample reasons for the increase before assenting.

EFFECTS OF EXPERIMENTAL GASTRECTOMY.

RECENT reports on the anæmia which sometimes follows gastrectomy give importance to a study of the effects of this operation in dogs, contributed by A. C. Ivy, J. E. Morgan, and J. I. Farrell.[1] During the past seven years they have performed total gastrectomy on 14 dogs which lived six months or more after the operation—some of them as long as five or six years—as well as on a similar number which did not survive nearly so long. After gastrectomy the animals needed about twice as much to eat, because much of their food passed undigested into the fæces, and it is interesting to note that they changed their habits to the extent of eating very slowly. Most of them showed compensatory hypertrophy of the duodenum in the course of the first six months, but not to any great degree, and none of them developed jejunal ulcer. Perhaps the most frequent cause of post-operative death was enteritis—a complication especially prominent during summer months—and this is attributed largely to loss of the bactericidal action of the gastric juice. Pyorrhœa was another sequela, but in no case was there any sign of stomatitis or glossitis of the type seen in human pernicious and other anæmias. Apart from these complications the most striking finding was anæmia. In only six of the 14 animals was this observed, and in three of these it did not appear until the animal became pregnant. In the other three dogs it was first noted four to eight months after operation; later it became severe and finally it proved fatal in two cases, anæmia and cachexia being the only causes of death discoverable at autopsy. In the third animal it was found possible to cure the anæmia by giving cod-liver oil by mouth and iron subcutaneously. The remaining three cases of anæmia were, as has been said, associated with pregnancy. In two of them it was possible to restore the blood to normal by cod-liver oil and iron administration, and this treatment was effective during a series of subsequent pregnancies in the same animals. In the third case the anæmia became so severe that death occurred in spite of blood transfusion. Commenting on these findings the authors mention the interesting fact that the earliest papers on pernicious anæmia deal very largely with cases in pregnant women. They think that the digestion of dogs after gastrectomy suffices in ordinary conditions, but cannot cope with extra demands for hæmoglobin, iron, and other necessary chemical bodies. The result of these or other emergencies is likely to be anæmia. Although the compensatory factors in the normal alimentary canal are fully adequate, such gross impairments as total removal of the external secretion of the pancreas or continual external loss of bile are more than sufficient to produce obvious insufficiency. They hold that total gastrectomy thus annuls the factor of safety, although it is usually possible by dietetic precautions to maintain health. The insolubility of iron salts in alkaline solutions often causes failure of absorption of necessary amounts of this substance, but as a rule, if the diet contains large quantities of iron and possibly other essential substances, no ill-effect will necessarily follow complete loss of the gastric secretions.

LADY BRUCE.

WE regret to record the death of Mary Elizabeth, Lady Bruce, the wife of Sir David Bruce, which occurred at Artillery Mansions, Westminster, on Monday last. Lady Bruce was the daughter of the late Dr. J. S. Steele of Reigate, was born in 1849, and married in 1883 Sir David Bruce, who had recently obtained a commission in the R.A.M.C. From the beginning of her husband's distinguished scientific career she was his devoted helpmate. She assisted in the successful discovery of the cause of Malta fever which marked the beginning of Bruce's classic contributions to pathology, and later in Zululand she shared in the adventurous researches in South Africa which will associate the name of Bruce for ever with sleeping sickness. Many of the illustrations that accompanied Sir David Bruce's work were due to her skill with pencil and camera, and her husband was always both scrupulous and proud in the acknowledgments which he made of her invaluable aid. Lady Bruce received the Royal Red Cross for her nursing services in the South African War, and the O.B.E. for her coöperation with Sir David in much of his laboratory work during the Great War. She will be deeply regretted by a large circle of friends.

THE ÆTIOLOGY OF INFLUENZA.

FOR some time now it has been widely held that influenza has for its prime cause a filtrable virus, but the experimental support for this conception (Nicolle and Lebailly, 1919; Yamanouchi, Sakakami, and Iwashima, 1919; M. H. Gordon, 1922) has never been sufficiently convincing to dispose of the other ætiological claimants. The reason for this is not far to seek. Apparently none of the ordinary laboratory animals is susceptible to the virus of influenza and the human volunteer is unsatisfactory unless he is prepared to submit to the strictest isolation both before and during the attempted experimental transmission. The question of the causation of the common cold—a problem beset with the self same difficulties—has been answered by the brilliant researches of Dochez[1] and his colleagues; the causal organism is a filtrable virus. This success can be attributed to two main causes: the recognition of the susceptibility of the chimpanzee and the possibility of using it as an experimental animal; and the elaborate precautions taken to protect the experimental animals (chimpanzee and man) from infection from outside sources. Those who have followed Dochez's work must have realised that his technique was admirably suited to the study of influenza, so it is not surprising that we should appetising. Much attention was also being given to methods of organisation of receiving, preserving, preparing, cooking, and serving food.

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[1] Surg., Gyn., and Obst., November, 1931, p. 611.

[1] THE LANCET, Sept. 5th, pp. 517 and 539.

A KITCHEN FACTORY.

Immediately after my talk with Prof. Sbarsky I visited Kitchen Factory No. 3 in an industrial district of Moscow. This restaurant served 18,000 dinners of two courses every day, as well as 7000 separate dishes. The hour of opening was 10.30 A.M., and it closed at 8 P.M. This particular restaurant was not attached to one factory, but situated in the middle of a group of 12–15 establishments, including textile mills and electrical and rubber factories. The building was a modern three-storied building, looking as if it had been built out of cubes, it was flat-roofed, and chiefly remarkable for the very large amount of window-space. The kitchen was on the top storey, big, clean, and equipped with steam and gas-cooking apparatus of a modern type. There was ample room for storage, preparation, and service of food in separate rooms, and the restaurants on two floors were large open halls holding 400 people each, plainly furnished with long tables and chairs for the diners, and food service counters for the waitresses. Each diner, before coming into the hall, had to obtain a food ticket and the price for a two-course meal was 35 kopecks. I had a meal with my companion. The food consisted of minced meat, potatoes, and vegetables, and a small cucumber of a kind very popular in Russia. My one-course meal cost only 25 kopecks and was quite appetising, but not enough for a hungry man. Attached to the main restaurant was a dining room where invalid and special diets could be obtained on prescription from a doctor, and adjoining this was a lounge with big chairs and couches, and an open-air extension on a flat roof projecting over the lower story. The room was pleasant and friendly, decorated with flowers, and delightfully quiet.

Close at hand was the laboratory of the restaurant which was in charge of a woman chemist. The calorific value of food supplied in the restaurant was checked daily. Questions of the quality of food could be referred to the laboratory, but in practice were apparently referred to a doctor attached to the restaurant. No bacteriological work was done, but the technical side of the cooking was watched. It is intended to use this laboratory, and others attached to similar restaurants, for future dietetic investigations. There is a system of food inspection carried out on all supplies arriving at the kitchen, and this is done by a doctor and a nurse acting together.

STANDARDISED RESTAURANTS.

There are many varieties of public restaurants in Russia at the present time. Some, like the factory kitchen described above, are large scale modern organisations. Some are small communal restaurants, or stolovayas as they are called, which are using old-time restaurant premises. But present tendencies point to the large factory kitchen type of restaurant as the one for standardisation. Six of these already exist in Moscow, and it is proposed to create others (some already exist) in Leningrad, Odessa, Kharkoff, Rostov-on-Don, Voronesh, and Novo-Sibirsk. The Soviet Government has budgeted for an expenditure of 2,200,000 roubles on restaurants during this year.

It is proposed to apply much the same kind of organisation to agricultural workers on State and collective farms. It needs to be realised that Russian farming of the new type is something outside of all ordinary farming experience. The State farm of Verblud, which I visited, is situated in the northern Caucasus region near Rostov-on-Don. This farm is essentially a township of 10,000 people, with machine shops, tractor garages, stores, communal restaurants, cinema, agricultural and technical colleges, and tenements for workers set in the middle of a farming area comparable with an English county. Workers of all grades live in the central township and go out to the part of the farming area where they are working in motors. The feeding problem is essentially the same as that of the town, with the difference that certain things, vegetables for example, may be easier to get. Collective farms are not on this scale at present, but they are equally communal centres in a farming area.

That the Soviet will achieve many interesting results by their scientific investigations of dietetic and nutrition problems in this very wide field should be certain, and the effort at scientific control of the feeding of 160 million people will be watched with the greatest sympathy by all scientific medical men. But Russia does not stop at scientific nutrition—she may go on to eugenics.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

ANNUAL MEETING OF FELLOWS AND MEMBERS.

THE annual meeting of Fellows and Members was held in the theatre of the College on Nov. 10th, Lord MOYNIHAN, the President, being in the chair.

Sir ERNEST GRAHAM-LITTLE moved the following resolution :—

"That this meeting of Fellows and Members of the Royal College of Surgeons of England reaffirm that it is essential that Members, who constitute nine-tenths of the College, should be admitted to direct representation on the Council, especially having regard to the striking result of the poll of Members taken last year."

He pointed out that the College contained some 2000 Fellows and 18,000 Members, and that the governing body of 24, the Council, was selected exclusively from the Fellows, and that no Fellow engaged in general practice had been elected. The Members, he said, represented the general practitioner element, their examination fees constituted the greater part of the College income, and they only asked for a very moderate representation. In support of this demand he quoted the figures obtained at a plébiscite vote last year, when nearly 7000 Members, resident in the United Kingdom and Irish Free State, out of some 12,000 Members to whom voting cards had been sent, voted in favour of representation.

Dr. H. H. Sanguinetti, seconded the motion, which was passed by 32 votes to 3,

Lord Moynihan admitted that the resolution had been supported by very fair speaking, but, as the Council was doing its duty sincerely in the interests of the whole College, he could not offer any hope for the representation desired.

By the permission of the President, Dr. T. Wilson Parry made the following statement, containing a suggestion that had received the explicit support of the Society of Members. He said :—

"It is my opinion that some Members of the Council, with every honourable and loyal feeling for the traditions of the College, have instinctive fears that if they permitted their ship to be embarked upon what appears to them to be uncharted seas they stand in some danger of having it wrecked on some unknown or concealed rock. Believe me, Sir, there is no fear of this. But they want to feel, and not unnaturally, that they are protected against calamity of any kind. I have every sympathy with these men, as I have a profound respect for traditions that have lasted and, in many ways, answered for a certain spell of years. In order that such may be reassured against any contingency of this kind I have a proposal to make that I think may not be displeasing to Members of the Council. Among the vast numbers of medical men in general practice in this country are a sprinkling of Fellows of the College, and I wish to propose that, to begin with, the Members of the College shall be permitted to elect one Fellow, who is a bona fide general practitioner, together with one Member, who is also in general practice, to represent them on the Council, and that the Fellow so elected shall be in addition to, and not replace, any of the 24 Members now sitting on the Council, so that none of the rights of these Fellows may be in any way infringed. I further propose that if this should be found to work satisfactorily, as it certainly should, at a subsequent election, in a specified number of years to be explicitly agreed, the Members should be represented by two of their own number which, after all, is the only ideal and practical method of dealing with the case. The Council of the College would thus be safeguarding the traditions of the College at the initial step, and so insure an honourable settlement which should be satisfactory to both parties.

"The College is now undertaking research work in surgery, owing to the munificence of one who, all his professional days, was a Member of the College. Laboratories are being built at Downe in Kent, and no efforts will be spared to further new discoveries and treatments in the science of surgery. But, Sir, it is not by pathology and experiment alone that a great success in such an undertaking can be assured. Careful and patient observation in clinical practice is as essential as microscopic, cultural, and experimental work in the laboratory. Among the myriads of medical men in general practice, which I think, Sir, you will admit forms the backbone of the medical profession, are men who possess qualities which would be of undeniable assistance to supplement this great work and the material would be at their very doors. A coöperation between these two sections would surely be a magnificent thing for the furtherance of the great project you have before you.

"The history of medicine has revealed many striking facts. Robert Waring Darwin, the father of Charles Darwin, and the father, grandfather, and great-grandfather of more Fellows of the Royal Society than exist in any other single family, was himself a distinguished man, a thinker and philosopher, and, moreover, a general practitioner in his native town of Shrewsbury. Edward Jenner, the medical originator of vaccination, was a country surgeon in Gloucestershire, who at the instigation of John Hunter came up to London to give consulting practice a trial, but miserably failed; so returned to the country, there to practise and leave behind him a name which has since become immortal. Again, Sir, one who was personally known to many of us, in another branch of medical service, by the patient and prolonged study of the administration of digitalis in diseases of the heart, has won for himself undying distinction. James Mackenzie spent the greater part of his professional life in general practice in Lancashire. These are only three names. I could add more. I mention them merely to show what coöperation might mean in this great new undertaking of the College.

"For 40 years these annual meetings have been held, and what have they brought forth? Nothing tangible. I beg, Sir, that we may now leave the past behind with its feelings of the risks of representation on the one side and that of a rankling injustice on the other, and that we may together coöperate and concentrate on the great future of the science of surgery. Disunion is damaging to progress; but unity, Sir, is strength."

MEDICINE AND THE LAW.

Bequests for Antivivisection Purposes.

THE recent issue [1] of "The Fight Against Disease" contains a good account of the significant decision of the Court of Appeal in *Re* Grove-Grady, Plowden *v.* Lawrence. Mrs. Grove-Grady, it may be recalled, bequeathed about £100,000 in specific legacies to various antivivisectionist bodies, homes for animals and other similar institutions. The remainder of her estate, approximately £200,000, she directed to be devoted to found a new antivivisection organisation to be called the Beaumont Animals Benevolent Society. One object of the society was to be the provision of refuges or sanctuaries "for the preservation of all animals, birds or other creatures not human" in a wild state, so that all such animals, &c., shall be "safe from molestation or destruction by man."

The validity of this residuary bequest was disputed. English law has a bias against perpetuities, but a perpetual trust for a charitable purpose is lawful. Was this bequest a charitable trust? The question what is or is not a "charity" in this legal sense is somewhat technical. Certain classes of objects recited in the preamble to an Elizabethan statute are "charitable," and this ancient list has been applied and extended by judicial decision. One principle is that the disposition is void (and not charitable) if it is not for the benefit of the public or of living persons. According to this principle the benefit of animals is not in itself a charitable object; a trust to feed sparrows, for instance, has been held to be void. In 1895 (*Re* Foreaux, Cross *v.* London Antivivisection Society) Mr. Justice Chitty held (not without hesitation) that a gift to certain antivivisectionist societies was a good charitable gift. Many good lawyers, then and since, have thought his decision irreconcilable with the general principle already mentioned. Nevertheless in July, 1928, a judge of the Chancery Division followed Mr. Justice Chitty and decided that the Grove-Grady residuary bequest was valid. It seemed, however, that the benefit to the public had not been adequately established; moreover, there was reason to think that, in these two cases, too much weight had been given to the donor's intention to benefit the country instead of considering the evidence whether in fact the donor's intention resulted in such benefit. The Grove-Grady case was therefore taken to the Court of Appeal where the previous decision was reversed. The Master of the Rolls said that in the proposed sanctuary the fox and the rabbit, birds of all sorts "with the stoat and the weasel and rats as neighbours and hawks and crows as spectators," were to live and enjoy themselves after their kind. Such a purpose, he observed, "does not in my opinion afford any advantage to animals that are useful to mankind in particular or any protection from cruelty to animals generally." In his judgment it was clear that "decision that an object such as the testatrix defines in the present case is charitable would go beyond any case decided at present." Lord Justice Lawrence dissented; he thought a bird and animal sanctuary, conducted on rational lines, might cultivate a spirit of mercy towards the brute creation and thus might elevate human beings. He considered it might even "have a more elevating effect on human beings than many of the trusts in favour of animals which have been upheld as valid charitable trusts—such as, for instance, trusts to protect animals from vivisection." The third member of the Court, Lord Justice Russell, agreed with the Master of the Rolls, and expressed doubts whether the old decisions upholding dispositions in favour of animals would be held charitable to-day. "For instance antivivisection societies which were held to be charities by Mr. Justice Chitty, and were described by him as near the borderline, might possibly in the light of later knowledge in regard to the benefits accruing to mankind from vivisection *be held not to be charities.*"

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[1] Quarterly Journal of the Research Defence Society (11, Chandos-street, London, W.). Autumn, 1931. 6d.

It is a pity that the Grove-Grady case was not finally reviewed by the House of Lords, in view of Lord Justice Russell's remarks. Notice of appeal was given but was withdrawn on a compromise reached by the Attorney-General, the next-of-kin, and the trustees of the will. The result was an agreed order that the Court of Appeal judgment should stand, save that a sum of £25,000 should be set aside for establishing in Great Britain homes or hospitals for animals "but so that no part of the said sum is *to be available for antivivisection propaganda.*" Whatever views anyone may hold about the ethics or *utility of experiments on animals, the Court of* Appeal decision in the Grove-Grady case is of much interest on the point of law.

"Vapour Rub" and Stamp Duty.

The Medicines Stamp Act of 1812 imposes a £10 penalty on persons vending certain classes of medicines without a paper cover, wrapper, or label, provided by the Inland Revenue authorities and duly stamped for denoting the duty charged on the packet, bottle, or other enclosure. The *Law Times* reports a recent successful claim by the Crown under this enactment against a well-known firm of wholesale and retail chemists for having sold a preparation called "Vapour Rub" in a carton not containing any label or stamp denoting that medicine stamp duty had been paid.

The Act of 1812 which contains a remarkable schedule of contemporary pills, salves, syrups, ointments, cordials, pomades, balsams, tinctures, &c., affected by the stamp duty, also contains some strangely worded "special exemptions." Among these exemptions are mixtures sold by chemists, &c., "the different denominations, properties, qualities, virtues and efficacies of which . . . are known, admitted and approved of in the preservation, cure or relief of any disorder, malady, ailment or complaint incident to or in anywise affecting the human body." The defendant firm argued that its "Vapour Rub" was thus "known, admitted and approved of" because the formula could be found in the Pharmaceutical Formulas, described as "Chest Vapour Rub." Mr. Justice Rowlatt said he might have allowed this argument to prevail if the firm had called its preparation "Chest Vapour Rub" and had added a reference to the Pharmaceutical Formulas; but they had called it "Vapour Rub" simpliciter, a term used for the first time when they began to sell it in 1929. "Vapour Rub," said the judge, could not pass as "known, admitted and approved of" by reason of the fact that "Chest Vapour Rub" was so known, admitted and approved of, unless it was also known that the two preparations were identical.

The Solicitor-General, who appeared for the Crown, hinted that the shops were full of other preparations which were illegally escaping medicine stamp duty. If, however, there are many more such claims by the Crown, there will be overwhelming demand for the revising and rewriting of these anachronistic statutes. The Chancellor of the Exchequer promised a reform of this nature several years ago.

GENERAL MEDICAL COUNCIL.

PRESIDENT'S ADDRESS.

AT the opening of the 134th session of the General Medical Council, on Nov. 24th, Sir DONALD MACALISTER, presiding, began his address by announcing the resignation from the Council of Sir Edward Hilton Young, M.P., Crown member of the Council since 1926, and now Minister of Health and a member of the Cabinet. "He has won his distinguished position," said Sir Donald "by many eminent services to the nation, and will always be remembered by us as the first layman to be appointed to a seat on this Council where by his interest and coöperation in its work and on that of the Executive Committee, he has earned and received our grateful recognition." The President recorded also the deaths of two former members since the last meeting. Mr. George Jackson, a direct representative from 1902 to 1907, and Mr. Edward Beadon Turner, a direct representative from 1920 to 1925. He continued:—

"The Executive Committee have received from the Government Offices a number of recent Bills and Acts from the various British Dominions and Possessions, codifying or modifying their local laws respecting the practice and profession of medicine. Most of these are on familiar lines, but some indicate a growing tendency to make independent arrangements regarding reciprocity with other parts of the Empire and with foreign countries, which will ultimately limit or otherwise alter the privileges of practising hitherto granted to practitioners registered only in the Colonial and Foreign Lists of the Medical Register. The self-governing Dominions, under the Statute of Westminster, will, no doubt, in future exercise the privilege of negotiating Reciprocity Agreements of their own with foreign countries and British possessions, otherwise than through the intermediation of the United Kingdom as hitherto.

"Progress has been made in India with the promised legislation for supervising and guaranteeing the standards of Indian medical qualifications. The Government of India has now forwarded a Draft Bill to constitute an Indian Medical Council with this purpose in view. The Draft Bill has been submitted to the Executive Committee for comment, and the Committee, after consideration, has resolved that the Bill, as drafted, is designed to provide a suitable means of ascertaining and controlling such standards, and of furnishing authoritative information thereon to other countries, including the United Kingdom.

"The cycle of inspections of our own qualifying examinations in medicine, surgery, and midwifery, which has been in progress during the last two years, is nearly completed, and early next year the various official reports will be in the hands of the Examination Committee. It will be its duty, after submitting the inspectors' reports to the respective licensing bodies for remark, to present them to the Council, and to the Lord President of the Privy Council, together with a comprehensive report on the general results, and such comments and recommendations thereon as it may deem expedient."

After alluding to the inspection now proceeding of the dental examinations, which he said would be the subject of a report that might advise a revision of the curriculum, he continued:

"A report will be laid before you, in camera, from the committee appointed last session to consider certain of the standing orders which appear to require amendment in the interest of greater efficiency and convenience. Various changes are proposed, which have been carefully framed with the invaluable assistance of our legal advisers, and will no doubt commend themselves to you for adoption, to come into force for future sessions.

"I do not propose to detail the many communications we have received during the recess from Government Departments and other public bodies, dealing with matters on which the Council's advice or assistance was desired. Many such communications you will find recorded in the minutes of the Executive Committee, to which they have been referred by the President. They show clearly the growing public confidence in the value of our opinion on questions of medical administration now accorded to it by the authorities concerned.

THE RESIGNATION OF THE PRESIDENT.

"During the summer I was unfortunately laid aside by a somewhat serious illness, and I desire to acknowledge very gratefully my indebtedness to the chairman of the business committee and others of my senior colleagues, and to the registrar, for their most generous and helpful aid in dealing with the somewhat heavy correspondence addressed to the president. Thanks to them, I have reason to believe that nothing of import has been neglected or overlooked. Since my recovery, in September, I have been able to resume my usual activities, and to make the necessary preparations for the Council's work of the session. But I find that my strength returns but slowly, and that I am less able than I was to stand the strain of continuous sittings. Desirous of observing the maxim, Ne quid detrimenti res publica capiat, I have accordingly decided, on medical advice, to ask you to relieve me of the trust you first imposed in me 27 years ago, when I was comparatively young and active. These have been years of happy and varied activity, supported and reinforced by the loyal confidence and consideration of the Council and each of its generations of members; and by their benevolent tolerance of my imperfections. I shall never be unmindful of all their personal friendliness and goodwill have meant to me. These, indeed, have made my whole period of service on the Council, now extending over 42 years, full of interest and satisfaction. I do not intend immediately to resign my place as member, but at the close of the present sitting, at the end of the business set down for to-day, I propose to resign the president's chair, in order that, if you think fit, you may elect my successor at your sitting to-morrow."

The customary vote of thanks to the President was moved by Sir Norman Walker and seconded by Sir John Moore, who said that, as the senior member of the Council, it fell to his lot to voice the feelings of all in their recognition of the President's loyalty to the Council, to the medical profession, and to the public, and their grief at the termination of his long term of office as President of the General Medical Council.

Later the President announced the election of Sir Norman Walker as his successor.

The Council then proceeded to the consideration of penal cases.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

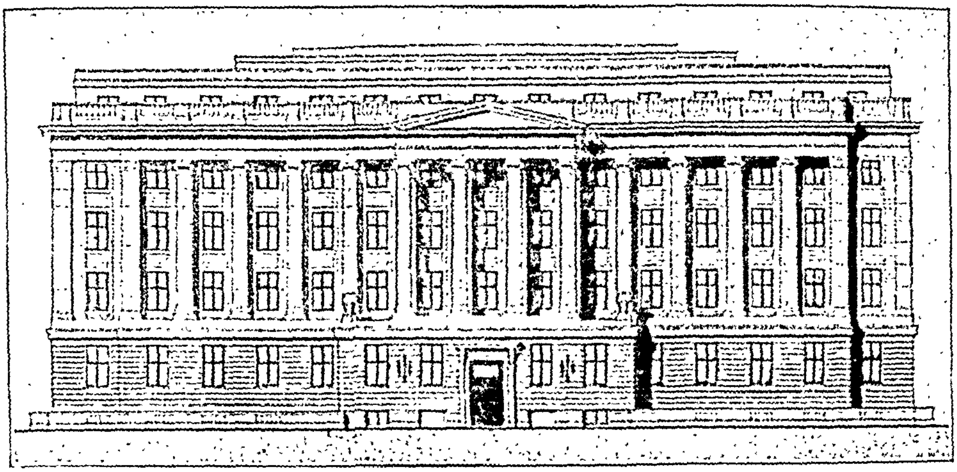
THE IRISH HOSPITALS SWEEPSTAKES.

THE draw of tickets for the fourth of the Irish hospitals sweepstakes—that for the Manchester November Handicap—was carried out in Dublin last week. So far there is no falling off in the sale of tickets, despite the vigilance of the British and certain other postal authorities. On the present occasion nearly £3,000,000 was received. Of this amount almost £2,000,000 will be distributed in prizes, and £735,463 will find its way to the hospitals. The rate-supported hospitals are now sharing, to the extent of getting one-third of the available moneys. The charitable institutions will, therefore, benefit to the extent of just under half a million. The distribution to the several charitable hospitals will be determined by the Minister for Justice, who will first have the advice of a committee of reference. The share of the rate-supported institutions on the other hand will be at the disposal of the Minister for Local Government and Public Health, who has invited the several health authorities to submit schemes to him for the improvement of their several institutions. In his speech at the opening of the drawing of tickets, Lord Powerscourt, Chairman of the Hospitals' Committee, declared that it was the hope of the Committee to carry on the sweepstakes until the hospitals had benefited to the extent of at least £12,000,000. Such a sum would be required for their proper equipment and for their future security. Including the present sweepstakes the funds made available for the hospitals since the beginning of the sweepstakes amount to nearly two million pounds.

Sweepstakes and Nursing Organisations.—A lengthy debate lately took place in the Dáil on the second reading of the Public Charitable Hospitals (No. 2) Bill, which seeks to provide that a portion of the proceeds of the sweepstakes promoted on behalf of hospitals should be applied for the benefit of charitable nursing organisations. The organisations intended to be benefited are those known as the Jubilee Nurses and the Lady Dudley Nurses, which devote themselves entirely to the nursing of the poor in their own homes in both city and country. Of late years the demand for the services of these nurses has grown out of proportion to the funds available to provide them, and there is a danger that the nurses may have to be withdrawn from certain areas in which they are badly needed. From all parts of the House there came the highest praise of the value of the work done by these nurses, a praise in which every practitioner in Ireland will agree. There was, however, some difference of opinion as to whether the nursing organisations should share in the proceeds of the sweepstakes. Mr. De Valera, leader of the Opposition, opposed the Bill on the ground that there was a definite obligation on the community to provide nursing services for the poor, and that the services should be provided from public funds and not left to charity or chance. The Bill, although a private member's Bill, received the support of the President, who declared that there was no intention of establishing a State nursing service. The debate was adjourned.

A STATE LABORATORY IN DUBLIN.

It is announced that the Rockefeller Trust has made a grant of £20,000 to the Government of the Irish Free State to assist in the erection of a State laboratory. The laboratory will be in Dublin and will be under the control of the Department of Local Government and Public Health. Advertisements for a director have already been issued. The laboratory should be of great assistance to the public health work now being organised throughout the country.



THE WELLCOME RESEARCH INSTITUTION.

THE ceremony of laying the corner-stone of the Wellcome Research Institution was performed by Lord Moynihan on Wednesday, Nov. 25th, in the presence of a large and representative company. Lord Moynihan said: "Dr. Wellcome for nearly 40 years has directed his most earnest thoughts and has bestowed his abundant gifts in order to create a great instrument for medical research, and to found a museum illustrating the significant events in medical history. His earlier labours were engaged in many directions. It was in 1894 that he founded the laboratories for physiological research, to be followed two years later by those for chemical research. When Kitchener recaptured the Sudan, Dr. Wellcome, one of the first civilians to visit that country, realised by personal contact with misery and illness in many forms that here there lay an unequalled opportunity for service. Little was then known of many of the diseases which since the birth of time had ravaged the districts then brought under British rule. In 1809 Kitchener opened laboratories built and endowed by Dr. Wellcome at Khartum for the investigation of tropical diseases. Andrew Balfour was the first director and continued his work there for twelve years. With this institute was associated a floating laboratory, towed to all the waterways of the Nile, affording opportunity for the collection of specimens, and for conduct of inquiry in areas otherwise inaccessible. It is interesting to recall that the first itinerant investigator was Dr. C. M. Wenyon, now the Director in Chief of this new Institution.

TRIBUTE TO MR. HENRY S. WELLCOME, LL.D.

"Dr. Wellcome's activities continued also in this country. In 1913 the Bureau of Scientific Research and the Historical Medical Museum were founded. In 1914 the Museum of Medical Science including Tropical Medicine, and in 1920 the Entomological Field Laboratory. The various establishments created by Dr. Wellcome have laboured under one disadvantage which every research worker will realise. They have been separate institutions, at distances often far apart, affording no easy communication between isolated workers engaged in the several departments. From to-day all is changed. This new institution is expected to house all. The Bureau of Scientific Research and the Wellcome Research Institution will be affiliated and a still closer community of interest will be fostered. There will be more accommodation for all departments and greater facilities for coöperative research. A mere enumeration of the subjects here investigated will show the necessity for this: for they include medical zoology, parasitology, chemotherapy, entomology, tropical medicine, and hygiene. The physiological and chemical research laboratories, and the Historical Museum and Museum of Modern Medicine under Dr. Daukes are also to be housed here. All this work has given Dr. Wellcome an experience unapproached by any other man, which has been freely placed at the service of others, and especially I may mention at the service of the United States when it created the Gorgas Memorial Laboratory. A conspicuous feature of all the work has been its relevance and opportunism. In the investigation of tropical diseases it began in an almost virgin field; and the harvest gathered has not only saved the lives, and restored the health, of multitudes of men, but it has made large tracts of country safe for ever for human habitation. At home the great needs of medicine to-day lie in the direction of greater opportunity for research and not less for the training of research workers. Clinical observation in medicine from Hippocrates through Sydenham and Addison to James Mackenzie has revealed many of the secrets of disease which lie within its orbit. Its conquests have been innumerable and of a value quite beyond reckoning. Upon it an ancient, virile, merciful, beneficent art was built long ago to the infinite advantage of mankind. It is within living memory that this exquisite art has found its activities enlarged and its ideals changed by the encroachment of thought and methods which are striving to convert an art into an applied science. Difficulties of course are daily encountered. Experiment brought to the aid of observation is indispensable; but hominal experiment is limited to the procedures of the operation theatre, and animal experiment is not always applicable or relevant; and may indeed even prove confusing. Meanwhile Anatomy is yielding place to Physiology. If disease is disordered function, a science of function even of comparative function must be created. Experiment has not only greatly strengthened the arm of Medicine, it has rendered its power of observation far more acute and has sharpened the tests through which the results of observations are found to be acceptable. Medicine, perhaps more than any other science, is based upon and its progress is determined by advances made in a number of affiliated sciences. Many of these will find their home in this Institute, and as our knowledge of them grows so also will the influence which each bears upon Medicine increase in strength also. Further, the clinician does not only require the aid of other sciences. He can no longer work efficiently unless he has been trained in the methods, and bred in the schools, of experimental sciences. The staffs of our teaching hospitals must be permeated by, and at last wholly composed of, those who are high priests in the religion of research, skilled in their imposed on a pneumokoniosis. The tumour (in the case of Joachimstal) has recently (1920) been shown to be carcinomatous, and develops in the large bronchi. And further, it is now recognised that the Schneeberg disease is of the same nature.

At first the arsenic, the content of which in the ores may reach as much as 0·45 per cent., was looked upon as the cause of the carcinoma, but as pulmonary tumours did not appear to be common in other arsenical mines the radium came under suspicion. The amount of radium emanation in the air and water of these mines is 50 and 70 maché units per litre respectively, and is very much below the therapeutic doses, while the radium in the pitchblende must be infinitesimal, but the miners are in contact with these some 20 to 30 years before the fatal tumour develops. This may occur at the end of the thirties, but mostly takes place between the fourtieth and fiftieth year of life. Dr. Baader concludes his report with the statement: "I have visited both places" (Schneeberg and Joachimstal) "and look upon radium as the main cause of the carcinoma of the lung."

I am, Sir, yours faithfully,

London, S.E., Nov. 23rd, 1931. R. KING BROWN.

THE MEDICAL REGISTER: OFFICE EDITION.

To the Editor of THE LANCET.

SIR,—May I remind those who find it essential to know whether a practitioner is legally qualified or not that, in order to facilitate their work, the General Medical Council publishes an office edition of the Medical Register, printed on inexpensive paper and bound in boards, but containing precisely the same names and lists as the more expensive edition. It is issued from this office at a special charge of 10s. post free, but no copies can be supplied unless they are ordered and paid for before Dec. 31st. The Council also issues each month a list of additions to and deletions from the Register, the charge for which will be furnished upon application.

I am, Sir, yours faithfully,

NORMAN C. KING,
Registrar, General Medical Council.
44, Hallam-street, Portland-place, W., Nov. 20th, 1931.

MEASLES IS PREVENTABLE.

of THE LANCET.

lescent serum in pre-
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impression that there was nothing that could be done to prevent or mitigate the disease in the individual. All those who have witnessed the almost miraculous efficacy of convalescent serum wish to see this method of serum prophylaxis universally applied, and this end will be more rapidly attained if both the medical officer and the layman are correctly informed on the matter. For this reason I deplore Dr. Forbes's attitude and the impression conveyed by the leading article in the *Times*.—I am, Sir, yours faithfully,

Freedom Research Laboratory, London Hospital, E., Nov. 23rd, 1931. S. P. BEDSON.

ALBUMINURIA IN PREGNANCY.

To the Editor of THE LANCET.

SIR,—Since my paper on albuminuria complicating pregnancy appeared in THE LANCET there have been several references to it in your journal.

Dr. A. A. Osman (Sept. 26th, p. 714) was kind enough to criticise the treatment that I have adopted, and I am glad to have the support of such an authority in my advocacy of absolute rest, and also in his acceptance of my plea for early induction of labour. He finds fault however with my low protein diet, first, because I have not produced evidence that a high protein diet is harmful, and secondly, because he thinks an adequate supply of protein is necessary to replace that lost in the urine. I am aware that diets high in protein have been advocated in the treatment of renal disease, but I have not been encouraged to use them for the following reasons. On theoretical grounds it has always seemed to me that any excess of protein metabolism over the minimum basal requirements of the body must involve extra work for the kidneys, and where we are dealing with a disease of such relatively acute type as occurs in pregnancy, I believe that physiological rest is all-important. In actual practice I have observed an increase in the amount of albumin in the urine, and a rise in the blood pressure, following upon an increase in the protein intake. For these reasons it has seemed to me right to diminish the protein in the diet to a minimum.

Your leader writer (Oct. 31st, p. 969) asks what is the ultimate fate of the patients that I have labelled "chronic nephritis" and "occult nephritis." I am quite sure that the patients with chronic nephritis will ultimately die from the disease, since they have all the clinical appearances of chronic Bright's disease due to other causes. The patients with occult nephritis I have yet to trace to the end. I have already observed cases where an occult nephritis has ultimately become a patent chronic nephritis, so that I expect to find that the difference in these two groups is one of degree only. But this is merely a prophesy.

Dr. G. W. Theobald (Nov. 21st, p. 1156) asks me to forgive him for prophesying that my patients with occult nephritis have in fact no permanent renal lesion. I am willing to do so, but at the same time I
state the I disagree with him. I am satisfied
t 10 per cent. of previously healthy women develop
chronic kidney damage as the result of a
cy toxæmia. I find no difficulty in believing
per cent. develop damage of a similar nature,
less marked degree, and the fact that I can
influence the incidence of recurrent
by early induction during the first
is to my mind strong evidence that the
cause of the recurrence is an occult
caused by the first toxæmic pregnancy.
lways been careful to avoid any expression
s to the cause of albuminuria of pregnancy,
have used the term "toxæmia" I have

position is becoming more and more insecure, although the amount of routine work undertaken has never been greater. While in other countries the professed aim is to increase the number and efficiency of specialists in the subject, the tendency in this country is at the moment in precisely the opposite direction. That this is realised by the younger men is shown in the difficulty now found in filling the junior hospital appointments devoted entirely or mainly to anæsthetic work. It would indeed in my opinion be unfair to encourage promising students to devote themselves to this specialty as long as the prospects remain so precarious.

What is wanted is the development of a policy which shall overcome this difficulty and at the same time provide (1) an efficient anæsthetic service for hospital work, (2) an improved standard of teaching, and (3) facilities for adequate scientific investigation of new drugs and methods.

I am, Sir, yours faithfully,
London, W., Nov. 23rd, 1931. H. N. Webber.

RESEARCH IN ASTHMA.

To the Editor of The Lancet.

Sir,—I believe that the claims made in a leading article last week under this heading concerning Dr. Oriel's proteose cannot be justified. They are made, I feel sure, on the authority of the Asthma Research Council's "Report of Progress from June 1st, 1930, to Oct. 31st, 1931." I am on the Medical Advisory Committee, but the reports are not submitted to us.

The crux of the matter lies in the alleged *specific* dermal reaction of Oriel's proteose; with this his work is of the greatest possible importance to immunology, but without it the work loses all significance. During the past year I have done the following:

1. I first tried to make this proteose in my own laboratory. I had to guide me, Dr. Oriel's original paper and his typewritten supplementary instructions. There seemed to be as much "proteose" from my own and from my assistants' urine as from that of asthmatic patients, so I got Oriel to come for criticism and help. He said these previous directions were inadequate, and very kindly gave me additional advice. Even so I still got the same heterodox results and was unable to produce a substance from an asthmatic's urine which gave a specific dermal reaction on that patient.

2. I got Dr. Roche Lynch at St. Mary's to try to prepare proteose with the help of Dr. Oriel's supplementary instructions, but nothing was produced which showed a specific reaction on the patients in question.

3. I sent urine from one of my out-patients at St. Mary's to Dr. Oriel's laboratory; he prepared and sent back the proteose, but it gave no specific reaction.

4. Dr. Oriel said that possibly a patient's urine yielded the proteose at one time and not at another, so I arranged with him that I would take into our research wards at St. Mary's first one bad case of asthma and eczema, and then, a month later, a second case of the same type; both cases were seen by Dr. Oriel and pronounced most suitable. I sent down daily specimens of urine to his laboratory covering periods of exacerbation and remission of the symptoms. Dr. Oriel sent me one specimen of proteose from the first case and two specimens (at about a week's interval) from the second. None of them gave a specific reaction. I offered to go on sending any amount of daily specimens from these cases, but I understood Dr. Oriel to say that it was not worth trying any more.

5. *This* is most convincing of all to me: Dr. Oriel gave me proteose he had isolated from hay-fever urine; this was said to give specific dermal reactions in 80 per cent. of all true hay-fever cases. I found it quite non-specific on all cases tested.

6. I suggested several times that his proteose should be the topic of debate in the Asthma Research Club, but Dr. Oriel laughingly cried off. In consequence of this I really thought that the specific action claim had been given up.

It is clear from the above that Dr. Oriel has given every help in his power to the settling of my doubts; but it will be clear also why I think the statement quoted in your leading article is unproven.

I am, Sir, yours faithfully,
Devonshire-place, W., Nov. 23rd. John Freeman.

DARWIN'S NAVAL SERVICE.

To the Editor of The Lancet.

Sir,—In the Naval Medical Service section of your Students' Number, August 29th (p. 482), mention is made of "the great Naval Surgeons of the past, such as Darwin, Huxley, and many others, who have contributed so much to science." As far as Huxley is concerned this is correct, for he was appointed assistant surgeon to H.M.S. *Rattlesnake*, though he had no medical and surgical diploma, and went in that vessel under Captain Owen Smyth on an exploring expedition to New Guinea. Darwin, however, was never a naval surgeon; two years' medical study at Edinburgh only gave him a distaste for the profession, so he never attempted to qualify himself or to practise it. He was appointed to H.M.S. *Beagle* rather as a guest of Captain Fitz-Roy, who was anxious to have such a man as naturalist and expert in science. This was approved by the Admiralty. All the details may be found in the "Life of Chas. Darwin," and in his ever-fresh "Voyage of a Naturalist Round the World."

I am, Sir, yours faithfully,
F. Lucas Benham, M.D., M.R.C.P.
Semaphore, S. Australia, Oct. 13th, 1931.

RADIUM BY MOUTH OR INJECTION.

To the Editor of The Lancet.

Sir,—In your issue of Nov. 7th (p. 1013) Dr. N. Mutch has shown how small doses of radium have a favourable effect on high blood pressure uncomplicated by kidney trouble. In discussing the general properties of radium and radium emanation he stated that "Radium, like lead, is a cumulative poison, which collects in the tissues and is slowly excreted by the bowel." This point was followed up by Dr. A. T. Todd in your issue of Nov. 14th (p. 1101), and I would like to add a further reference to a disease occurring in certain mines in Saxony and Bohemia, which seems to me to have an important bearing on the subject of the therapeutic administration of radium and its emanation.

Dr. Ernst W. Baader[1] has recently published a small book on industrial diseases which are notifiable in Germany, and among these is the so-called Schneeberg disease. Schneeberg is a small mining town in Saxony, on the northern slopes of the Erzgebirge, where, along with various metalliferous ores (cobalt, &c.), uranium pitchblende is mined for its radium. There are similar mines at Joachimstal, in Bohemia, on the southern slopes of the same range. In both these mines a considerable percentage of the miners suffer from "pulmonary tumour" super-

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[1] "Gewerbekrankheiten" (Industrial Diseases), p. 121, Urban and Schwarzenberg. 1931.

Erection of Two-room Dwellings.

Mr. Summersby asked the Minister of Health whether he was aware that in a large number of instances families were living in one room, often a basement, and paying 17*s.* 6*d.* a week rent; and would he consider the desirability of abandoning certain restrictions in order that two-room dwellings might be erected at an economic rent of 5*s.* a week or less, seeing that this would be such an improvement as to justify the abandonment of the present principle of four- or five-roomed houses or none at all.—Sir E. Hilton Young replied: I am not clear what restrictions my hon. friend has in mind but I should be glad to consider any proposals which he may be able to make for reducing the cost of building as he suggests.

Government and Municipal Expenditure.

Mr. Joel asked the Minister of Health the present policy of the Government with regard to all borough extension, and to municipal outlay in general, apart from the continuance and normal extension of vital services.—Sir E. Hilton Young replied: The policy of the Government with regard to municipal expenditure is set out in the circular issued in September last. With regard to borough extensions, I cannot prohibit a Council from applying to Parliament but I hope that no Council will promote a Bill or a Provisional Order at the present time unless there are very special reasons for doing so. I do not consider that the review of County Districts under the Local Government Act of 1929 should be delayed.

Approved Society Deficiencies.

Mr. David Grenfell asked the Minister of Health the amount of surplus or deficit, as the case might be, at the last valuation of those societies whose membership was confined to miners.—Sir E. Hilton Young replied: The amount of surplus or deficiency of every approved society will be given in the Appendix to the Report of the Government Actuary on the Third Valuation, which will be published very shortly.

Payment of Income-tax.

Lieut.-Colonel Fremantle asked the Chancellor of the Exchequer whether he is now in a position to state what arrangements will be made in the collection of income-tax due on Jan. 1st, to carry out the promise of his predecessor in regard to any cases of hardship arising from the payment of the increased instalment of three-quarters of the tax.—Mr. Chamberlain replied: My predecessor undertook that consideration would be shown in any case of hardship arising from the payment of the increased instalment of three-quarters. The Board of Inland Revenue are accordingly authorising collectors of taxes in such cases to accept a substantial payment on account in January provided that the taxpayer promises to pay the balance without further application not later than the first week in March. Any taxpayer who is liable to pay an instalment of three-quarters on Jan. 1st but finds it impossible to pay the whole sum on that date can arrange accordingly with his collector of taxes. I must, however, make it clear that this arrangement is to apply only to cases of hardship where the taxpayer cannot find the whole sum immediately. Taxpayers who can meet their liabilities should make a special effort this year to pay their income-tax when it falls due. It is of great importance to the national finances that we should get early payment of income-tax and realise the Budget Estimates for the year and in order that the individual taxpayer should have this brought to his notice I have authorised the Commissioners of Inland Revenue to issue with the income-tax demand notes a copy of the appeal for early payment that was made by my predecessor during the passage of the second Finance Act.

Mr. Maxton asked the right hon. gentleman what machinery it would be necessary to set up to investigate the cases of hardship in connexion with income-tax.

Mr. Chamberlain: I do not think it will be necessary to set up any machinery. My experience is that persons who suffer hardship are always quite ready to provide the machinery themselves.

The Sale of Milk.

Sir Charles Cayzer asked the Minister of Agriculture whether his attention had been called to the recent publication by the Empire Marketing Board advocating the sale of milk on a basis of quality instead of by volume; and whether this represented the policy of his department.—Sir J. Gilmour replied: Yes Sir, my attention has been called to Sir William Lampier's report. I am in sympathy with the principle that the price paid for milk should, so far as practicable, be differentiated according to quality, but the matter is one primarily for settlement between the producers and distributors.

MONDAY, NOV. 23RD.

Imports of Foreign Liquid Milk.

Captain Heilgers asked the Minister of Agriculture i he was aware that a number of empty milk churns were shipped from Harwich to the Continent on or about Nov. 17th with a view to the importation of foreign liquid milk at an early date; and whether he would take any steps to prevent any such importation.—Sir John Gilmour replied: I have no information with regard to the statement made in the first part of my hon. and gallant friend's question. I am, however, making inquiries. Future action must obviously be governed by future developments.

The Calmette Tuberculosis Vaccine.

Mr. Groves asked the Minister of Health whether the Medical Research Council had completed their report on the result of their inquiries into the deaths of 76 infants in Lübeck, Germany, following the administration of the Calmette prophylactic tuberculosis vaccine; and, if so, when was it proposed to make the report public.—Sir E. Hilton Young replied: I am sending the hon. Member a copy of a reply given by my predecessor to a question on this subject on Nov. 6th, 1930. As stated in that reply, the report made to the Medical Research Council by their two representatives who visited Germany was a confidential one, and dealt with technical matters which are of interest only to research workers. It is, therefore, not proposed to make the report public. The report did not traverse the ground of the official German inquiry which was made by the Imperial Board of Health. The substance of the report on that inquiry was given in reply to a question on Feb. 17th.[1]

Leprosy in India.

Major Milner asked the Secretary of State for India the numbers of lepers in India at the latest convenient date; whether he could give figures for the past ten years to show what progress was being made with the disease; and what steps were being taken to combat it.—Sir S. Hoare replied: The number of persons classified as lepers at the census of 1921, the latest official figure available, was 102,513, but it is probable that the number is considerably in excess of that returned. Exact figures to show progress are not available, but great advances have been made through the training of medical men, the survey of infected areas, and the opening of dispensaries. Last year the cases under treatment in the dispensaries of one province alone were more than three times as many as were being cared for in the whole of the leper institutions of India ten years ago.

Highbury Hospital, Birmingham.

Lieut.-Colonel Fremantle asked the Minister of Pensions what use would be made of the Highbury Hospital, Birmingham, when it was closed; whether the equipment belonged to the Ministry and, if so, how it would be disposed of; and what was to become of the medical and non-medical staff.—Major Tryon replied: The use to which the premises will be put when the hospital is vacated by the Ministry rests with the trustees. Much of the equipment belongs to the Birmingham Pensions Hospital Committee, but such of it as belongs to the State will be taken over by His Majesty's Office of Works. Alternative employment has been provided or offered to as many as possible of the members of the staff who are in the direct employment of the Ministry, including the medical superintendent. The majority of the staff, however, are employees of the hospital committee.

Lieut.-Colonel Fremantle: When such hospitals are about to be closed down, is there any communication with other Government departments which might possibly have a use for them, or is it left to the Office of Works to put the equipment into a warehouse?

Major Tryon: The hospitals as they become vacant for one service are immediately used for another.

Lieut.-Colonel Fremantle: I am asking about equipment. Is it left to the Office of Works to keep the equipment in their warehouse, or is it offered to other departments?

Major Tryon: Naturally, the equipment will be used where wanted.

Mr. P. Hannon: Will the right hon. gentleman use his influence to find employment for these officials of the Highbury Hospital who are not officers of the Ministry. Otherwise very great hardship will be inflicted upon them.

Major Tryon: I cannot specially undertake to do that.

Mr. Hannon: Is he aware of the valuable services rendered by these non-official servants?

Major Tryon: I am well aware that their services are valuable, and I have no doubt that the committee will do their best for them.

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[1] See The Lancet, 1931, i., 416.

two and a half years the Labour Government passed 200 two-shift Orders, and did not pass any Factory Bill. No official complaint on this subject had been received at the Home Office, and it appeared that these Orders still continued to receive the assent of the workers when they were put into operation. The point made by Mr. Rhys Davies regarding sickness arising under this two-shift system was not a very substantial one. As the hon. Member had quoted from the report of the Industrial Fatigue Research Board, he (Mr. Stanley) would supplement that quotation with the following which was also taken from the report :—

> "No conclusive statistical evidence has been found of a greater amount of sickness on one system than the other. . . . When the statistics were grouped by departments it appeared that the total sickness of the departments on shift work was exactly *the same as that of the departments on day* work."

The Government could not accept this amendment, which would work not for the benefit but for the disadvantage of the persons concerned, and would jeopardise the employment of at least 40,000 people.

The amendment was rejected by 373 votes to 33.

HOUSING POLICY.

Mr. MAXTON moved an amendment the purpose of which was to withdraw from the owners of houses the right under the Rent Restriction Acts, 1920, to charge 40 per cent. increased rent. He said that he had steadily held that those increases of rent were unjustifiable. Most of the houses affected were old houses, and the capital invested in them had been returned to the investors over and over again. With reduced unemployment benefit, with means tests and people cut out of benefit altogether, the position of many people to-day was very bad. No more pitiable spectacle was to be seen in the whole of our social economy than the hundreds of women attending the courts in Glasgow with their babies in their arms struggling against the power of the law to maintain a roof over their heads. If hon. Members could see some of the houses which those women were struggling to maintain, and from which they were in terror of being evicted, they would realise to what depths human beings could fall in the existing social order.

WANTED A CONSTRUCTIVE POLICY.

Lord EUSTACE PERCY appealed to Mr. Maxton to demand from the Government in due course a constructive housing policy covering the whole area of rents, a policy which would deal with the chief evils of the situation. What the poorer people wanted was a constructive building policy for the provision of new houses, and not merely a policy which would give them security of tenure in their present slums at a slightly lower rent. The greatest influence for the perpetuation of slums had been the Rent Restriction Acts.

After further debate,

Sir E. HILTON YOUNG (Minister of Health) said that a general debate on housing policy at this moment would be premature, because more time was needed for considering this problem in the light of changed events. He accepted freely the appeal that had been made that the Government should give reconsideration to the whole of the housing problem, and restate the broadest principles of housing policy. The Government were considering this matter, and would come to conclusions upon it. It was recognised that there was information now available that all
The secoı ith our housing policy in one respect—
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metric examiver class of houses to let for the wage-
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specific reactionesle from the point of view of social
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I understood Dr. Oles uses. The Government would
trying any more. nother appeal that had been
w. ey should not consider this problem in any light of class interest. They would consider it in the single light of the interests of the whole community, and a fair deal for the landlord and for the tenant. The Government could not accept this amendment which would reduce the whole of the legislation on rent restriction to chaos, and cause intolerable hardship upon a large class, particularly those who were mortgage owners.

The amendment was rejected by 311 votes to 40.

The Bill passed through Committee and was read the third time.

HOUSE OF COMMONS.

THURSDAY, NOV. 10TH.

Housing Schemes.

Sir JOSEPH NALL asked the Minister of Health the present position regarding the housing schemes of the corporation of Manchester; and whether his department would continue to require the city council to build only the types of houses for which the greatest demand existed.—Sir E. HILTON YOUNG replied: The Corporation of Manchester have recently submitted proposals for the building of over 2000 houses many of which are of a larger size than I think is required. The Corporation have been asked to revise their proposals so that the bulk of the houses to be provided can be let at a lower rent than has been usual in the city for Corporation houses and I am in communication with them on the subject.

Major MILNER asked the Minister of Health the number of housing schemes which had been suspended or retarded following the suggestions to local authorities that all expenditure should be reduced to a minimum; and the number of persons who would have been employed had the various housing schemes been continued.—Sir E. HILTON YOUNG replied: I have only been informed of nine cases covering quite a small number of houses in which any definite action has been taken by the local authority to curtail or suspend their housing programme. The hon. Member will see from a copy of a Circular which I am sending to him that he is under a misapprehension in stating that it has been suggested to local authorities that all expenditure should be reduced to a minimum irrespective of its character or purpose.

Panel Practitioners and their Patients.

Mr. RHYS DAVIES asked the Minister of Health the changes proposed in the relationship between doctors and their panel patients; whether any regulations covering those new relationships were to be laid upon the Table of this House and subject to the usual practice; and why the approved societies had not been consulted on these changes.—Sir E. HILTON YOUNG replied: Regulations making minor amendments in the Medical Benefit Regulations will shortly be published in draft and will be laid before Parliament in due course. I do not think it will be found that the Regulations materially affect existing relations between insurance doctors and their patients; and the third part of the question does not, therefore, arise.

Mr. RHYS DAVIES: Is it not the custom of the Ministry of Health to consult the Consultative Committee of the Ministry in regard to health insurance administration, and why has not the Committee been consulted this time?—Sir E. HILTON YOUNG: The hon. Member is rather anticipating the event. I would ask him to await consideration by the House of the regulations and then see whether there is any necessity for the question he now asks.

Disability Pensions and Relief.

Captain STRICKLAND asked the Minister of Health whether, seeing that the disability pensions of ex-Service men were granted in view of definite injury received incapacitating the recipients in competition for employment and that that handicap was recognised by the references contained in the circulars issued by the Ministers of Health and Labour dated Oct. 8th and Nov. 11th, he would seek power to have the duties laid down by the Order in Council so altered that it might be a definite instruction that these disability pensions should not be taken into account in assessing relief either through the public assistance committees or other public bodies under the authority of the State.—Sir E. HILTON YOUNG replied: As my hon. and gallant friend is aware, local authorities have recently been reminded that the disability in respect of which the pension has been awarded may be such as to call for a greater measure of assistance than would normally be appropriate. It is essential that in assessing the needs of an applicant for relief regard should be had to all the circumstances of the individual case, and I could not adopt a suggestion which would arbitrarily remove from consideration all income of whatever amount, derived from a particular source.

NOTES, COMMENTS, AND ABSTRACTS

INDIVIDUAL PSYCHOLOGY AND PSYCHO-ANALYSIS.

ADDRESSING the Medical Society of Individual Psychology in London on Nov. 19th, Dr. Erwin Wexburg, of Vienna, said that individual psychology s based on one principle or "final tendency" —namely, the purposive unity of man's personality. In psycho-analysis on the other hand, though a great deal is said concerning final methods of interpretation, the theory as a whole is causal. Individual Psychology agrees that causality operates, but it points out that this perception does not help towards he understanding of a man's personality. For this purpose the person must be regarded as a whole, as purposive unity built up on childish patterns. Psycho-analysis, he continued, does not agree with his point of view. It acknowledges that childhood patterns are maintained throughout a whole life, ut it explains this by an energetic simile: if libido checked it will flow back to childhood indulgences. But this theory clears up nothing but itself. The nergetic calculation is right, but psychical energy, the ibido, is only a working hypothesis, a natural power ke electricity or warmth, it is not a fact. But a real ct, the subject, is missing here as it is in the whole psycho-analytical theory. This is a *mistake.* psycho-analyst cannot even make a purchase or ll upon a friend without acknowledging what he denying in theory, that there is a centre of personal e, whose purposes are to be understood by motives, d not to be explained by energetic calculations.

The same profound difference between theory and actice is to be found in psycho-analytical therapy. ter daily interviews for years suppressed tenden-s are brought to light, and are then mastered by e ego, the representative of reality. But who es this? Does the libido regulate itself? This ust be so if the work is done by the ego instincts, ice psycho-analysts maintain that the ego instincts e nothing but a certain form of libido. To the dividual psychologists, however, the ego is the ntral personality, responsible for itself, and for its le in social life. The neurotic differs from the althy man in that, unknown to himself, he seeks r ends not adapted to reality. By treatment he ins insight into where he was wrong, and so is abled to change his method of life. This is what ycho-analysis calls sublimation and transference libido on to legitimate objects.

Dr. Wexburg pointed out that Freud's original ethod of psychical research is fully adapted to the ea of finalism, which is the basis of individual ychological theory and practice. The individual ychologist considers that tendencies which betray emselves by dreams of neurotic symptoms are aracteristic *of the subject's style of life, of his* personal purposive pattern." For the psycho-alyst they are strivings of his sexual desires. gain, he said, the subject is missing.

"THAT REMINDS ME OF A STORY."

A LITTLE book entitled "Jokes: Seen and Unseen,"[1] rms reminiscences, through the compiler's lifetime, stories which have appeared to him worth bringing gether in a convenient form. Though the author sclaims intention to classify them, they are divided to stories relating to principals and other high gnitaries; to professors and lecturers, to students, nd to characteristics or episodes related to various niversity circles that have gone the round in their articular centres. While some of the stories are ertain to be familiar to many readers, there are others hich will probably be new, The risk that any story selected for quotation, though new to the reviewer, might not be so to readers, prevents the reproduction of any excerpts, but the little volume is an obvious contradiction to a popular estimate of the Scottish character, in that some of the best jokes emanate from northern universities. Many of these anecdotes will probably be new in larger circles than those where they are perennially popular.

NEW PREPARATIONS.

NOVUTOX.—This preparation, a new local anæsthetic, is described by the manufacturers (The Pharmaceutical Corporation, Ltd., 30, Aldersgate-street, E.C.) as self-sterilising and possessing a powerful chemo-therapeutical action upon wounds. The chemical composition is para-amino-benzoyldiethylaminoethanol hydrochloride and adrenalin in Ringer's solution with an addition of quinotoxins in proportion of 1 : 80,000 and 0·1 to 0·2 per cent. benzoic acid. The solution is isotonic. The bacteriological results furnished to the manufacturers by their experts point to a highly valuable quality in the preparation. Novutox is supplied in ampoules and in 2 oz. bottles, in each case the percentage strength of the solution being indicated on the receptacles, and a statement of the manufacturers as to the advantages claimed is also enclosed. These may be summarised as follows. In addition to the self-sterilising property already mentioned, the anæsthetic is described as prompt, deep, and lasting, there is an absence of distressing systemic effects, the toxicity is low, and the healing process rapid. In support of these claims the Pharmaceutical Corporation, Ltd., has forwarded to us a large number of signed statements from responsible persons, including a well-known professor of surgery written from the hospital where his Chair is located; the author of a scientific manual of bacteriology, who writes from the hospital where his tests were made; and many members of the medical staffs of general and special hospitals, especially dental practitioners. The evidence which has thus been brought to our attention is particularly strong, so that we feel safe in commending the trial of Novutox to our readers. At the same time we may remind Pharmaceutical Corporation, Ltd., of the valuable support to their contentions that would be obtained by a verdict from the Therapeutic Trials Committee of the Medical Research Council, a body which is prepared to consider applications by commercial firms for the examination of new products. These have to be submitted, with the available experimental evidence of their value, when appropriate clinical trials can be arranged in suitable cases.

The same firm send us a bactericidal sterilising fluid termed ASAPA to be used for surgical instruments, injection syringes, and dental instruments. They supply here also signed evidence that the preparation does not rust, stain, or corrode instruments, nor impair cutting edges. The fluid which is employed undiluted is supplied in approximately one quart bottles on which full directions for use are affixed. These directions contain the important caution that in order to eliminate every risk to the patient it is absolutely essential to remove every trace of Asapa from syringes after they have been sterilised. This can be done by rinsing with Ringer's or physiological saline solution. The warning is also given that no Asapa must come into contact with the local anæsthetic.

THE CÆSAREAN OPERATION.

A PAPER on Cæsarean Section, its History and Present Status, was read by Dr. A. H. Davidson, president-elect of the Dublin University Biological Association, at the annual opening meeting of the Society. Tracing its history from early times, he pointed out that it was attended by a very large mortality during the eighteenth and nineteenth and the results obtained by individual inquirers who have investigated a series of cases. Even these cannot be regarded as altogether reliable sources of average figures. Not all the hospitals reports give the information required, but from a careful examination of those which do give it, the conclusion may be drawn that at least 50 per cent. of the infants born dead are cases of antenatal death, the great majority showing "maceration"; the remainder are cases of intranatal death.

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[1] Jokes: Seen and Unseen. By David Fraser-Harris, B.Sc. ond., M.D. Glasg., D.Sc. Birm., sometime Professor of Physio-gy, Dalhousie University. Paisley: Alexander Gardner, Ltd. 31. Pp. 126. 2s.

Owing to the high proportion of complex cases which these hospitals deal with the actual rate in both classes is no doubt also high. It is, however, possible to classify to some extent the cases of stillbirth in relation to the character of the labour, and this is of some assistance, because cases of dystocia and of antepartum hæmorrhage, and of grave maternal disorders such as toxæmia and cardiac diseases obviously increase greatly the risks to the child in labour.

If from the total number of stillbirths in a hospital are deducted first the infants born in a condition of maceration, and second those born in dystocia or in grave maternal disease, the difference will approximate pretty closely to the number of stillborn infants who died in birth as the direct result of the birth process and in the absence of grave complications. A not unfair estimate would appear to be that roughly 20 per cent. of the total stillbirth mortality of the lying-in hospitals occurs under such uncomplicated obstetric conditions, and is therefore attributable directly to birth trauma, using that term in its widest significance. The two conditions in this group which most often lead to fœtal disaster are breech presentation and occipito-posterior presentation of the vertex.

EXPERIENCE OF MATERNITY HOSPITALS.

In consequence of this high proportion of abnormal cases the stillbirth-rate of most of the maternity hospitals is at least double the national rate. A nearer approach to average conditions is to be found in the out-patient maternity practice of these hospitals. For our present purpose the returns of the East End Maternity Hospital give the most useful information because they include only a negligible number of emergency cases. Practically all the cases have been under the care of the hospital during the antenatal period. Rather more than half are delivered in hospital, the remainder in their own homes.

In the return, comprising over 10,000 cases, recently published by Dr. Oxley,[2] medical officer to this hospital, it is shown that in the case of primiparæ not more than from 12 to 13 per cent. are delivered in their own homes, the remainder are admitted to hospital. The conditions which obtain are therefore to be regarded as approximating, as nearly as can be, to average conditions over the country as a whole. From this report it is seen that over the period under review the stillbirth-rate was 27 per 1000 births, a figure corresponding closely to that of the metropolitan boroughs generally. The view is expressed by the author of the report that 15 per cent. of the stillbirth mortality [illegible] preventable by good midwifery." The neonatal [illegible] the same period was only 13 per 1000 births, [illegible] compares very favourably with the national [illegible] as very few of the patients remained [illegible] for more than 14 days, some infant [illegible] been missed. The error would probably [illegible] there is reason to believe that roughly [illegible] neonatal death-rate occurs in the first [illegible] cent. in the second week.

[illegible] drawn from the data published [illegible] careful organisation and ante[illegible] [illegible] little effect on the still[illegible] [illegible] the neonatal death-rate is, [illegible] result of the conservative [illegible] by this hospital.

It is possible at this point to put forward the tentative suggestion that of the total stillbirth-rate as disclosed in hospital reports, antenatal deaths account for at least 50 per cent.; deaths in serious obstetric complications for 30 per cent.; and the remaining 20 per cent. occur in the absence of serious birth complications, either maternal or fœtal. The matter can be carried one step further, for the East End Maternity Hospital Report for 1930 contains the statement that six infants out of 1423 births died during "normal labour." One of these was born before the mother's arrival in hospital, and if this case is excluded it follows that in that year there was a stillbirth mortality in normal labour of 3·5 per 1000; as the gross stillbirth-rate for the hospital in that year was 32 per 1000, it would appear that nearly 10 per cent. of it resulted from normal labour. Of course no general conclusion can be drawn from such small numbers, or from the experience of a single unit, and there are no parallel statistics to be found in the reports of other hospitals. There is, however, abundant evidence of another kind that a certain amount of infant loss occurs everywhere from uncomplicated labour, the extent of which it is impossible to define.

RISKS OF UNCOMPLICATED LABOUR.

Thus one hospital in a certain period reported a series of "603 spontaneous and uncomplicated vertex deliveries," and the stillbirth-rate in this series was 4·79 per cent., a figure considerably above the highest point reached by the national stillbirth-rate, and equivalent to about one-third of the total stillbirth-rate of this hospital. This series no doubt included an unspecified number of premature births, but there must be among them a considerable number of normal full-time infants who succumbed to the effects of uncomplicated labour.

The systematic study of birth injuries confirms the view that intranatal death is by no means confined to difficult obstetric conditions. Ehrenfest in his standard work on the subject says[3]: "Practically without exception every known type of parturitional trauma has been observed subsequent to spontaneous labour." Speaking for his own country (U.S.A.), this author further believes that there is a "steady increase in birth injuries from the pronounced modern trend of operative midwifery." These statements are by no means isolated. Fahmy and Crowe have reported[4] the results of the post-mortem examination of 248 stillborn infants from the Edinburgh Maternity Hospital.

They described 11 cases of intracranial hæmorrhage in full-term infants spontaneously delivered; in 7 of these "there was no disproportion and the labours were easy." Again, 15 infants spontaneously delivered died of asphyxia; 2 were associated with antepartum hæmorrhage, 5 with eclampsia, and 1 with a flat pelvis. Excluding these there remain 7 infants stillborn from asphyxia in uncomplicated labour. They further report that out of 16 neonatal deaths in spontaneously born full-term infants, 7 were the result of intracranial bleeding, and in each case "the labour was easy, the longest lasting only 18 hours."

There can be no reasonable doubt that the loss of the infant under approximately normal obstetric conditions is a not uncommon occurrence, although it is not possible to form an estimate of its actual frequency.

BREECH CASES.

The great bulk of the fœtal mortality of uncomplicated labour no doubt occurs in breech cases, and in cases of forceps delivery. Gibberd,[5] who studied the results of breech cases in six lying-in hospitals, estimated the total intranatal (30 per cent.) and neonatal (9 per cent.) deaths at 39 per cent.

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of all breech cases; this high figure is, of course, inapplicable generally, for the reasons already stated. The East End Maternity Hospital, with its very low
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PS DELIVERY.

ery by forceps, it is very difficult
stimate
to which the life of the child was
ady prejudiced by the conditions which necessitated
use of forceps. In the case of two series of forceps
veries reported by two different hospitals, it is
sible to exclude cases of antepartum hæmorrhage,
emia, failed forceps, face, brow, or breech presenta-
, and contracted pelvis. After these deductions
made, in one series the combined intranatal and
natal death-rate was 15 per cent., in the other
er cent. In a proportion of these cases the indica-
n was fœtal distress, and here the forceps operation
ust be rightly regarded as an effort to save a life
ready heavily endangered. Yet when all possible
llowances have been made, the evidence is conclusive that the operation in its simplest form is attended by definite risk to the life of the infant.

EFFECT OF LABOUR ON NEONATAL DEATH-RATE.

We have seen that there is not much evidence with regard to the proportion of the neonatal death-rate which should be attributed to the effects of labour. The most recent contribution is a report by Cruickshank[6] to the Medical Research Council of a series of 800 post-mortem examinations on neonatal deaths which occurred in the Glasgow Royal Maternity and Women's Hospital, and which he believes to be a fair sample of the general stillbirth-rate in that hospital. An important point, upon which national figures would be very interesting, is the proportion of deaths in the neonatal period of a month which occurs in the first week, because it is especially during the first week that the delayed mortality of intranatal stress and injury must be looked for.

Dr. Cruickshank found that in his series of 800 cases, 70·6 per cent. of the deaths occurred during the first week, 10·4 per cent. in the second, 7·3 per cent. in the third, and 2·7 per cent. in the fourth. These proportions are probably an underestimate of the third and fourth weeks, because the great majority of patients do not remain in a lying-in hospital much longer than 14 days, and there may have been unrecorded infants' deaths in those who had already been discharged which would affect the figures of these weeks.

In considering the proportion of deaths which should be attributed to the birth process, the author rightly takes the position that deaths attributable on autopsy to asphyxia and the frequently associated condition of atelectasis, are really cases in which the strain of labour proved to be more than the infant could survive. They are therefore to be attributed to the birth process. In all 540 cases out of the 800 were attributable in whole or in part to asphyxia; almost without exception these infants died during the first week. Among the 540 cases were 161 in which gross intracranial bleeding was also found. If these cases of intracranial hæmorrhage be deducted we get 379 out of 800 neonatal deaths which were solely due to the results of asphyxia, a proportion approaching 50 per cent.

Dr. Cruickshank's results would have been far more valuable if the clinical records had been correlated with the post-mortem findings. Unless the method of delivery be brought into relation with the post-mortem conditions, the significance of the latter cannot possibly be rightly judged, and the practical usefulness of the data is therefore greatly impaired.

Although it appears that considerably more than one-half of the deaths in his series must be attributed to the combined effects of asphyxia and intracranial hæmorrhage, we do not know in how many cases obstetric complications or serious maternal illness may also have been present, which would greatly prejudice the infant's chances of survival. It is therefore impossible to draw from Dr. Cruickshank's report any more exact conclusion than this—viz., considerably more than 50 per cent. of the deaths *in his series* were due to obstetric stress or obstetric trauma, occasioned we do not know how. From the East End Hospital figures we gather that roughly 12 per cent. of neonatal deaths were due to "atelectasis and birth injury"; this is a very different proportion to that reported from Glasgow, and is probably much nearer the average rate for the whole country; but here again we do not know to what extent maternal illness contributed to the results.

It is thus clear, that great as is the proportion of neonatal loss which is attributable to maternal illness and obstetric complications, there is a residue, at present incalculable, of cases in which the infants died in the neonatal period as the result of an uncomplicated delivery. And we have already seen that the same must also be said of intranatal deaths.

DELAYED EFFECT OF TRAUMA.

The infant mortality from trauma is in some cases delayed beyond the neonatal period. There are, of course, no precise data available, and the actual number involved is probably not great. There is, however, a group of conditions, which do not strictly come within the limits of our subject, but of which some mention must be made. These are the results of obstetric injuries which do not prove fatal, but which lead to permanent defects or disabilities in later life. The occurrence of birth palsies, deafness, and speech defects is well known, and these are not necessarily the result of obstetric manipulations. Cases of facial paralysis have been known to occur in infants born by Cæsarean section. Injuries to muscles and fractures of bones sometimes lead to permanent disability. Proof has accumulated that cranial injury at birth is an important cause of mental deficiency.

This has recently received confirmation from the examination by Wetterdal[7] of the late history of a series of 2000 *infants delivered by forceps in the practice of a Scandinavian hospital.* Wetterdal also followed up 2000 infants spontaneously delivered as a control, and compared the numbers found to be mentally defective in each group. In the case of children delivered by a low forceps operation there was no increase; but in the case of children delivered by the intermediate or high forceps operation, the proportion of defectives was nearly 50 per cent. higher than in the controls.

It is impossible to pursue this matter any further, but it must not be overlooked that minor degrees of birth trauma may lead to very serious consequences to the child.

To What Extent is the Mortality Avoidable?

It is an interesting problem to what extent the mortality we have been considering is avoidable. A large number of the infants included in the records were premature, and it is well recognised that the infant born before the thirty-sixth week is very ill-equipped to support the stress of birth. A large available—in the literature. The tests for any one function, though giving that particular information, cannot therefore be expected to throw light on the other functional activities of the organ. Clinically one of the functions in which the liver is concerned, though not exclusively responsible, (for example the excretion of bile) may fail, while another, for example the glycogenic function, may appear to be competent. If there was any evidence that the hepatic functions fail in a constant sequence, tests for the last one to be disordered would throw light on the condition of the liver as a whole; but such a sequence is not known, and the desired single and comprehensive test for total hepatic efficiency is not available. Determination of the total or so-called global functional capacity of the liver by estimating the power of the liver to remove dyes, such as rose bengal and phenolphthalein compounds, when injected intravenously, from the blood, has been advocated; but it is significant that the tests involving the use of phenoltetrachlorphthalein (Rosenthal), bromosulphalein (Rosenthal and White) have led to the adoption of cholecystography which provides more gross anatomical information, and that examination of the fæces, duodenal contents, and blood for the presence and rate of removal of the dye have been largely abandoned. Chiray, Lesage, and Taschner's recent investigations do not lend any encouragement to the hope that the same substance would serve as a test for the efficiency of both the liver and the biliary tract.

Many, if not all, of the functions of the liver are shared in some degree with other organs or tissues of the body, thus the muscles are concerned with carbohydrate metabolism, and efficiency tests, other than those utilising lævulose and galactose, give information as to the body as a whole and not about the liver alone.

The liver has great reserve power, for experimentally four-fifths of the liver can be removed without any bad effects. After damage to the liver, for example in subacute atrophy, compensatory regeneration rapidly takes place and the functional efficiency of the organ is more or less restored. Hence in serious chronic diseases of the liver, such as cirrhosis and malignant growths, functional tests may be negative although the clinical evidence may be quite convincing.

VALUE OF TESTS IN MEDICAL PRACTICE.

It is in acute rather than in chronic lesions of the liver that functional tests are likely to give constant evidence of impaired activity. In acute yellow atrophy, in which all or nearly all the parenchyma of the liver and presumably its functions are involved, the clinical picture usually gives sufficient data for the diagnosis, and the need for further tests may not be obvious. In the treatment by arsenobenzol preparations of syphilis evidence of impaired function in the excretion of bile—the presence of bile acids in the urine by Matthew Hay's test, and so-called latent jaundice by Hijmans van den Bergh's test—is valuable by giving a warning that changes are taking place in the liver and so indicating cessation of the injections and the administration of glucose, in order to avoid the more severe accidents of post-salvarsan jaundice. These methods have the advantage of simplicity and rapidity over the lævulose test in routine work (W. I. Gerrard).

In chronic ascites due to causes other than hepatic disease, such as tuberculous peritonitis and carcinomatosis of the peritoneum, negative results with functional tests, such as rose bengal, may be of use in diagnosis (Barker). The value of van den Bergh's test in connexion with different forms of jaundice may be regarded as established. It is in ordinary portal cirrhosis that, in spite of many reports to the contrary, functional tests so often fail, especially when their help is most needed. The lævulose and galactose tests have been much employed, but the compensatory power of the liver may vitiate the results, especially in latent cases. Urobilinuria, common in cases of structural change and functional disorders of the liver, provided that bile enters the intestine, is not pathognomonic of any one disease of the liver, and may occur when blood destruction is taking place in any part of the body.

TESTS OF HEPATIC FUNCTION.[*]

By E. C. Dodds, M.V.O., M.D. Lond.,

COURTAULD PROFESSOR OF BIOCHEMISTRY, UNIVERSITY OF LONDON (MIDDLESEX HOSPITAL).

It would be difficult to find a subject more unsuitable than the present one for a display of recent advances and brilliant developments. The introductory speakers in a discussion such as this are expected to produce something new, or at least to give indications of lines for further research. Some ten years ago a discussion was held by the Medical Society of London on this very problem, and it is very doubtful if much of permanent value can be added. Many of the reactions and functional tests that looked so promising at that period have now been found to be of little or no practical value, and are now added to that long list of tests in text-books memorised by the ambitious student for the higher examinations in medicine. Up to ten years ago the general feeling of physicians and pathologists was much more hopeful with regard to the testing of liver function than it is to-day. Thus reference to the then current text-books reveals dogmatic statements concerning functional tests designed to investigate the antitoxic function, the urobilin formation, the nitrogen partition, and many others. The Continental literature was full of promising articles on the lævulose-tolerance test, the blood fibrinogen estimation, and later on the hæmoclasic crisis test of Widal. About the year 1921 publication on these lines began to decrease, and since then a definite *gloom* has settled upon the outlook of this problem of vital function-testing.

THE WORK OF THE MAYO CLINIC.

At first sight it might appear strange that the depression commenced at this particular period, yet a careful search of the literature will find one paper responsible for this rapid change of outlook. Originating from this one publication a series of others have continued the work, and all have re-emphasised the hopelessness of the task facing the physician and laboratory worker. The original publication is that of F. C. Mann, and the later communications originate from himself and his group of co-workers at the department of experimental surgery in the Mayo Clinic. It will be remembered that this group of investigators were the first to remove successfully the liver completely from the dog and to study the metabolism of the animals by modern biochemical methods. This work has been referred to a great deal in the past, but it would appear that to many the reference is a mere name associated with an idea that much of the liver may be removed from a normal dog without the immediate development of serious symptoms. Few realise the long and elaborate series of investigations of hepatic function that has been carried out in this department, and the conclusions of the very greatest importance to all interested in the liver that have been arrived at. In view of this I propose to summarise their publications over the last ten years with a view to refreshing the memories of all who are interested in the pathology of the liver.

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[*] A contribution to a discussion at the Medical Society of London on Nov. 23rd, 1931.

The technical description of the method need not be gone into here. Suffice it to say that the operation is performed in a series of stages, and that from a surgical point of view the animals are in excellent condition after the final removal of the liver. I will quote Mann in the description of the clinical condition of the dog after the removal of the liver.

> "If the operation is performed successfully with due regard to hemostasis and anæsthesia, the animal recovers from the immediate effects quickly, and the clinical course is definite and varies but slightly in the different animals. One hour after operation the animal usually appears almost normal, and remains so for from three to eight hours; it walks around, responds to call, and exhibits the usual interest in other dogs, and drinks water, and sometimes takes food. Observers seeing the animal at this time pronounce it normal. The onset of the moribund period is usually sudden, and the subsequent developments of various symptoms typical and rapid. The first symptom noted is muscular weakness. The animal cannot hold itself erect, or avoid swaying when walking, and prefers to lie down. The muscular weakness develops quickly, and in a short time the animal is unable to move any of its muscles except those necessary for respiration. Coincident with this development of muscular weakness is a decrease and subsequent loss of reflexes. Usually within an hour after evidence of muscular weakness is first noted, the animal lies quietly breathing with muscles flaccid and relaxed. This period of flaccidity may be short but rarely it may last for several hours. After a variable period, usually not more than an hour, there is a rather sudden return and exaggeration of the reflexes. Muscular twitchings appear at first involving separate muscles or small groups of muscles, then general convulsions occur in one of which the animal dies. In typical experiments the animal vomits a few seconds before death. The symptoms and the order of their occurrence are: muscular weakness, loss of reflexes, flaccidity, return and exaggeration of reflexes, muscular twitchings, and convulsions. These symptoms are extraordinarily constant. The average animal if untreated dies within two hours after the appearance of the first signs of muscular weakness."

EFFECT OF COMPLETE REMOVAL OF THE LIVER.

The course of events consequent upon complete removal of the liver may be classified and dealt with under the following headings.

1. *Disturbance of Carbohydrate Metabolism.*—The muscular weakness and convulsions referred to in Mann's clinical description are due to hypoglycæmia. The blood-sugar falls rapidly until the hypoglycæmia level is reached at which point the symptoms appear. The intravenous administration of glucose at once relieves the convulsions. After a short period a relapse will occur and restoration can again be effected by further glucose injection. It is possible to keep the animal alive for a number of hours by this method, but death finally takes place in a coma due to some unknown cause.

2. *Protein Metabolism.*—A change occurs in the nitrogen partition following removal of the liver. Very briefly it may be stated that the blood and urinary urea progressively diminishes, and that amino-acids appear in increasing concentration. The uric acid content of both blood and urine shows a steady increase, thus indicating the important part played by the liver in the destruction of this substance. Creatinin metabolism is unaffected.

3. *Biliary Functions of the Liver.*—The blood cholesterol shows no change whatsoever, but jaundice develops in all the animals surviving the operation. Within six hours the plasma is definitely yellow, and clinically jaundice may be detected on the conjunctiva. Tested by the van den Bergh method the plasma gives an indirect reaction which later becomes biphasic. The importance of this observation upon the question of the origin and types of bile-pigment cannot be over-emphasised.

4. *Antitoxic Functions of the Liver.*—As is well known, it has been maintained for many years that the liver is responsible for the conjugation and detoxication of poisons such as phenol. It is interesting to relate that these American observers failed to find any diminution in the conjugation with glycuronic acid of phenol, or of salicylic acid, in the hepatectomised animal. The animals as a whole, however, were more easily poisoned than a normal dog.

5. *Hæmatopoietic Function of the Liver.*—No alteration could be detected in the hæmoglobin, red cells, plasma protein, fibrinogen contents, nor was there any evidence of alteration in the coagulation time of the blood.

That, very briefly, is a summary of the facts of complete removal of the liver, and it is of obvious importance in pointing out the precise functions of the liver which the investigator would hope to be able to test by functional reactions. Since, however, there is no clinical condition in which the liver is completely put out of action, we must turn to the experiments of Mann and his collaborators upon the effects of partial removal of the liver. Great technical difficulties were encountered owing to the remarkable regenerative powers of the dog's liver. The difficulties were finally overcome by a combination of methods, and it was found possible to produce a permanent reduction of some 70 per cent. of the functioning liver tissue. In these animals, with roughly four-fifths of the liver removed, they were unable to detect any evidence of diminished function by means of the tests described. The animals remained in a good state of health, and the only abnormality that could be found was a tendency to a high uric acid content of the blood. No alteration could be found in the nitrogen partition, the pigment metabolism, and the antitoxic function. Surely it is not difficult to account for the pessimistic outlook of experienced workers in this field in view of these experiments. The investigator of hepatic function must either abandon finally and completely all the methods mentioned above, or else must doubt the work of Mann and his collaborators, or alternatively maintain that the hepatic function in the dog is totally different to that in man. As to the accuracy of the Rochester work there can be no possible doubt, since many European workers have seen the demonstrations in America, and have repeated in every detail these striking experiments. There is no evidence that the liver function in the dog is different to man in its main essentials, and therefore the argument of inapplicability of the results to man would appear to fall to the ground.

LEGITIMATE DEDUCTION.

I may perhaps be permitted to sort through the wreckage of tests of hepatic function in the hope that perhaps one or two points of value may be found. My own experience has shown that two tests may be of value, and these are the galactose-tolerance test and the estimation of bile-pigments in the blood. Again, it is not proposed to enter into any literary summary as this has been done many times. The galactose-tolerance test to me is only of value in the differentiation in a very early case of jaundice in, say, a middle-aged patient. A sudden attack of jaundice in a patient of, say, 40 years of age may mean a simple catarrhal jaundice, or possibly a more serious condition such as obstruction of the bile-duct through secondary deposits, &c. A galactose-tolerance test performed on such a patient will very materially assist in a differential diagnosis. If a marked rise be found in the blood-sugar following the administration of galactose then it is fairly safe to conclude that the patient is suffering from catarrhal jaundice. On the other hand, no rise at all, indicating that the liver function is normal, would point to an obstructive, and possibly more serious, case of the icterus. Apart from this, the galactose and lævulose-tolerance test has proved in our hands at least unreliable and impossible of interpretation.

The estimation of bile-pigment in the blood is only of value in determining the severity of the jaundice, and would, repeated from day to day, give the clinician valuable indications as to whether the condition is getting better or worse. The icterus index is the simplest and most satisfactory method of performing this test, and it possesses the advantages of being so simple that it can be done at the bedside. The same results may be obtained by an application of the quantitative van den Bergh reaction, but this is much more difficult to perform, and requires expensive apparatus. The van den Bergh reaction in our experience is of little practical value in elucidating the nature of jaundice. Whatever the underlying theoretical principles responsible for the various types of van den Bergh reaction, it must be admitted that from the clinical viewpoint the problem reduces itself to a quantitative one. If there is a very large quantity of bile-pigment in the serum then an immediate direct reaction will be obtained, and since obstructive jaundice is the only condition commonly encountered with a very large serum bilirubin content, it follows that little will be gained by performing this test. The reverse argument holds good in the case of the delayed reaction with the small amounts of pigment encountered in hæmolytic jaundice. These remarks must not, however, be allowed to deprecate the great importance of the van den Bergh reaction in the experimental investigation of jaundice. There can be no doubt that this work has advanced our knowledge of this difficult subject in an immeasurable manner. From the clinical aspect, however, it must be admitted that little fresh information can be gained from this source over and above that resulting from a careful examination of the patient and inspection of the serum. Experience with the dye excretion tests as methods of estimating the functional activity of the liver has failed to yield valuable results. For general work the tests proved unsatisfactory, and have been severely criticised in the literature. Examination of the fæces for bile and fat content, and an examination of the urine for urobilin are of little value in assisting in assessing the functional capacity of the liver other than giving evidence as to the amount of obstruction, and warning of an oncoming attack of jaundice respectively.

THE WORK AT JOHNS HOPKINS.

It would appear impossible to hold out any hopes for further developments of tests on the lines reviewed above. A reconsideration of jaundice from the point of view put forward by Rich may perhaps lead to the development of fresh tests to investigate this condition. The following is an account in his own words of his views.

"The first type, retention jaundice, results from an over production of bile-pigment, usually associated with conditions (anoxæmia, fever, immaturity) which tend to render the excretory power of the liver subnormal; enough bilirubin is therefore retained in the blood to stain the tissues. This form of jaundice is characterised clinically by (1) indirect reacting plasma bilirubin; (2) increased amounts of fæcal urobilin; and (3) urobilinuria. Pathologically the ducts are patent, but the liver-cells may show atrophy or cloudy swelling, depending upon the associated condition *of which the jaundice is a symptom.*

"The second type, regurgitation jaundice, is caused by the reflux of whole bile from the canaliculi into the blood stream. This type is characterised clinically by (1) direct-reacting plasma bilirubin; (2) subnormal amounts of fæcal urobilin; and (3) the presence of bilirubin and bile-salts in the urine. The pathological basis of this form of jaundice is rupture of the canaliculi resulting from obstruction of the ducts or from necrosis of the hepatic cells.

"Combined forms may occur, as well as a transition from one of these types of jaundice to the other."

If this classification may be adopted, it may be possible to shed new light by an application of the quantitative van den Bergh test, the icterus index, and the galactose-tolerance test. In conjunction with this one of the more recent modifications of the dye-excretion test might succeed in eliciting new facts. Finally, however, it would appear that investigations along the older lines will only lead to errors and disappointment.

References.—Mann, F. C.: The Effects of Complete and of Partial Removal of the Liver. Medicine, 1927, vi., 435. Rich, A. R.: The Pathogenesis of the Forms of Jaundice, Bulletin of the Johns Hopkins Hospital, 1930, xlvii., 376.

VITAMIN D DEFICIENCY, DENTAL CARIES, AND TONSILLAR ENLARGEMENT.

A CLINICAL INVESTIGATION OF SOME LATE EFFECTS OF RICKETS.

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In spite of important work carried out during recent years, the cause of dental caries in man is still uncertain. Or possibly the situation might be more accurately described thus: it is known that diet, oral hygiene, general health, and age, for example, are all ætiologically significant, but there is no general agreement as to the specific cause or causes actually operating to produce the very high incidence of caries found in most civilised communities, nor as to what specific prophylactic measures should be employed. One of the difficulties in the way of establishing the cause of caries is the difficulty of producing at will caries of the teeth in laboratory animals. The chief theories regarding the origin of dental caries, together with some of the evidence on which they are based, are reviewed in a recent issue of the *American Journal of Diseases of Children*,[1] and no attempt will be made to recapitulate them here. The following investigation was aimed at obtaining evidence *for* or *against* one theory only—namely, that caries in school-children is mainly due to a deficiency of vitamin D in the first years of life.

THE PROBLEM.

Mrs. Mellanby's many and important experiments have shown that dental structure in young animals (dogs, rabbits, and rats) is rendered defective by a deficiency of vitamin D, the antirachitic vitamin, in early life. D-deficiency in puppies, with whom most of her work was done, does not produce dental caries, although it does produce defective structure—in other words hypoplasia—but she considers that similar hypoplasia in children is the main ætiological factor determining the development of caries. The following quotations from her papers give, we think, a fair representation of her views on the cause of caries:—

> "The most potent factor for promoting the development of normal teeth and jaws is a vitamin associated in general with fats, and now called vitamin D."[3]
>
> "There can be little doubt that the structure of human teeth and their susceptibility to caries are intimately related."[3]
>
> "In paper 2 of this series it was suggested that 925 out of 1036 deciduous (human) teeth examined might be regarded as in agreement with the hypothesis that there is a direct relationship between structure and caries, while 111 of the teeth were definite exceptions. . . . Now . . . the experimental work on dogs showed that the resistance of teeth, as indicated by the quantity and quality of the secondary dentine laid down in response to irritation, could be altered by certain factors, especially the amount of vitamin D in the diet. . . . The structure of the secondary dentine of 72 per cent. of the exceptions to the main hypothesis suggested that their resistance to caries had been raised or lowered, respectively, after eruption."[4]
>
> ". . . Nearly 90 per cent. of the teeth examined might be considered to support the general hypothesis that structure and caries are intimately related."[3]

From this it appears that there are two aspects of the problem: (1) The influence of D-deficiency on the structure of developing teeth and on their *subsequent* liability to caries—to this influence on structure Mrs. Mellanby apparently ascribes the presence or absence of caries in nearly 90 per cent. of the deciduous teeth she examined; and (2) the influence of D-deficiency on fully erupted teeth (which may or may not show developmental defects), and on their *immediate* liability to caries, which, judging from the quotation above, is in Mrs. Mellanby's opinion a much less important factor.

If the views quoted above are correct, then children who have suffered in the first years of life from a deficiency of vitamin D sufficient to produce well-marked rickets should also show well-marked hypoplasia and much caries of those teeth which have been calcified during the rachitic period, whereas a child protected from rickets should have well-formed and, on the whole, sound teeth. It is this first aspect of the problem which we have attempted to investigate.

Mrs. Mellanby, with Dr. Lee Pattison,[3] has herself investigated in children the second aspect. She has watched the effect of different diets on the already erupted teeth of institution children. These observations were made on three different occasions from 1921 onwards, the total number of children being 124, who were subdivided into seven dietetic groups and kept under observation for about seven months. She finds that these investigations "corroborate the results suggested by the animal experiments"—namely, that the administration of vitamin D and factors favourable to the cure of rickets will cause arrest of caries. In the newly published Medical Research Council Report of the Committee upon Dental Diseases[5] (of which Mrs. Mellanby is a member), much larger numbers of children are included (332), and these were kept under observation for two years or 18 months. In the *permanent teeth* of children receiving extra vitamin D there was, as compared with controls, a statistically significant retardation in the spread of caries. As regards the *deciduous teeth*, on the other hand, the difference in the rate of spread of caries between children getting extra vitamin D and the controls was not statistically significant, except in the case of those controls who received an extra ration of treacle, which introduces another factor into the problem. Mrs. Mellanby has not, so far as we know, yet published any investigation into whether or not children who have suffered from definite D-deficiency in the past, as evidenced by bone changes, have a higher incidence of caries than others. And, on the other hand, our investigation does not deal with the problem of the influence of continued administration of vitamin D on the immediate liability to caries of already erupted teeth.

Larger numbers of children than those recorded in our paper would have been desirable, but it is thought that even an observation on a small scale, such as this, has provided evidence requiring serious consideration, and may stimulate the production of further evidence.

GROUPS OF CHILDREN EXAMINED.

The primary object of the present investigation was to compare the teeth of children who had suffered from rickets with those of a control group, of similar age and social class, who had not. A secondary object was to determine whether the proportion of children with enlarged tonsils was greater in the rachitic group than among the controls. For this purpose it was necessary to find a group of children known to have had rickets and a set of control children with whom they could fairly be compared.

(*a*) *Selection of rachitic group.*—The children selected for the rachitic group were of school age (6–10 years old), and had all attended the Queen's Hospital for Children in infancy or early childhood with rickets. Since the standard accepted for a diagnosis of rickets of the milder grades varies considerably from observer to observer, the cases included were, with few exceptions, only those seen and diagnosed by one of us (H. M.). The exceptions were a very few cases of severe rickets which had attended under a surgeon. All doubtful cases were omitted. No case was included in which the diagnosis was not made with absolute certainty, either clinically or radiographically, or both, diagnosis being based on bone changes. Some of the children had subsequently had a long period of treatment, others only attended the hospital once or twice, and probably received extremely little treatment in consequence. The children were not attending the hospital at the time of this investigation (winter 1930–31), but were written for that they might be re-examined.

(*b*) *Selection of control group.*—Finding a control group was a matter of some difficulty. It might have been possible to select children who had been under continuous observation—e.g., who had attended a welfare centre regularly, and had been given cod-liver oil during the winter in infancy and early childhood—and who were known to have had no evidence of rickets during the whole of the first few years of life. But such a group of children would not have given a fair comparison, because their up-bringing would probably have been better in many respects than that of our rachitic group. Their mothers would have been frequently instructed in feeding and hygiene, and constant attendance at a welfare centre is in itself evidence of maternal carefulness. Better teeth, if found in such a group of children, could not therefore have been attributed to any single factor. It was, therefore, decided to select for our controls past patients of the hospital who had attended at similar ages in infancy and early childhood to the rachitic group, but who had not, *at that time*, any evidence of rickets. All these children had been seen and examined by one of us (H. M.). They had attended for a great variety of conditions from malnutrition to pneumonia or threadworms, and, like the rachitic cases, for periods varying from a few weeks to many months.

(*c*) *Economic status of the families.*—Thus the group of rachitic children was compared with a group of children of similar age who had attended hospital about the same time with diseases other than rickets. Nearly all mothers of both groups had been given some instruction in the feeding and general management of their children, but the diet during the years intervening between this time and the date of the present investigation is unknown. The children who were brought up in response to our request appeared to be children of parents who were worse off than the majority of the hospital's patients. Both groups were, on the whole, at the time of this investigation living under bad economic conditions; the winter of 1930–31 has seen a rise in unemployment in the district served by this hospital, and consequently the economic conditions and the diet of the children were in many cases worse than

origin. Therefore, although the controls may have included some children who at one time or another had had rickets, any vitamin D deficiency from which they had suffered during the first years of life must have been slight as compared with the deficiency suffered by the rachitic group who, six years and more afterwards, were still retarded in growth. Even if every malformation of the chest were regarded as evidence of rickets this would still hold true. Hence if vitamin D deficiency in early life and a consequent defect in dental structure is the chief, or even one of the most important causes of dental caries, then there should be much more caries in our rachitic group than in our control group.

COMPARISON OF TEETH IN THE TWO GROUPS.

In the examination of the teeth attention was paid to three main points:—

1. The presence or absence of hypoplasia of teeth of the second dentition.
2. The presence or absence of crowding of the teeth of the second dentition, provided a sufficient number of these teeth had erupted.
3. The presence or absence of caries at the time of examination, and the number of teeth already extracted for caries.

The association between *hypoplasia* of the permanent teeth and rickets was clearly indicated (see Table II.). In the rachitic group, ten children (22 per cent.) showed hypoplasia of the permanent teeth, seven of these being of a fairly severe grade; whereas in the control group hypoplasia was noted in one child only (2·5 per cent.), and that in a slight degree. It is impossible to generalise from such small numbers, but in the individual groups we are considering hypoplasia was nine times as common in the rachitic group as in the control group. As the children's ages varied from 6 to 10 years, many had cut only a small proportion of their permanent teeth, and some none at all, so that the figures here given for hypoplasia of the permanent teeth do not indicate the total proportion of second dentitions showing this defect. Moreover, the hypoplasia was of a grade to be easily recognisable clinically; hypoplasia of a grade requiring histological section for its recognition is, of course, excluded.

ABLE II.—*Number of Children with Crowding or Hypoplasia of the Permanent Teeth.*

—	Rickets.		Controls.	
	Cases.	Percentage.	Cases.	Percentage.
hildren with—				
Crowding ..	9	20	7	18
Hypoplasia ..	10	22	1	2·5

The diagnosis of hypoplasia is obviously subjective, many cases so diagnosed by one dentist would be excluded by another, so that it becomes necessary to describe the naked-eye changes in the appearance of the permanent teeth which have been accepted as evidence of hypoplasia by S. F. R. in this investigation. The diagnosis has been based on the condition of the enamel which in a typical case is markedly craggy, grooved, or pitted. The tooth crowns have a shrunken or wizened appearance, the incisal edges being often so thin that they readily chip or break off under the stress of mastication. Often the enamel is deeply pigmented. In a typical case the incisors, canines, and first molars are affected, the premolars and second molars, which calcify later, escaping. Both upper and lower teeth are usually equally affected. On developmental grounds one would expect any nutritional check which brought about the condition described to be in operation during the first or second year of life. Later checks might affect the premolars and second molars, but hypoplasia in these teeth is much less common, and our groups of children were too young for investigation of these teeth.

No figures have been given for the incidence of hypoplasia in temporary teeth because there are such wide differences of opinion as to what deciduous teeth should be classified as hypoplastic: the differences of opinion are such that a condition called by some hypoplasia of the temporary teeth is by others believed to be a denuding form of caries which has undergone arrest.

In the matter of *crowding* of the permanent teeth there was little to choose between the two groups (see Table II.). Nine of the rachitic group (20 per cent.) and seven of the controls (18 per cent.) showed some crowding, in spite of the large proportion of permanent teeth unerupted at these ages.

The comparison of the amount of *caries* in the permanent teeth of the two groups has been set out in Table III. This shows the average number per head of carious and of extracted teeth in each group at the time of examination. All teeth extracted were, according to the parents, extracted for caries. Since the age distribution in the two groups was similar, and the average age was the same, a fair comparison should be obtained by estimating the number of carious and extracted teeth per head. The teeth of children in the rachitic group were very slightly worse than those of the controls, but the difference is so slight that no stress can be laid on it. Thus

TABLE III.—*Number per Head of Carious or Extracted Teeth in Rickets and in Control Groups.*

—		RICKETS.							
		Temporary teeth.			Permanent teeth.				
		Molars.			Molars.				
Age-group.	Cases.	Carious.	Extracted.	Per head, carious and extracted.	Carious.	Extracted.	Carious incisors.*	Carious pre-molars.*	Per head: All teeth of second dentition, carious and extracted.
6 yrs. ..	10	19	31	5·0	6	1	0	—	0·7
7 ,, ..	15	26	61	5·8	12	2	0	—	0·9
8 ,, ..	6	8	33	6·8	13	0	0	—	2·2
9 ,, ..	8	11	35	5·8	12	5	0	—	2·1
10 ,, ..	7	7	28	5·0	13	6	0	—	2·7
Total..	46	71	168		56	14	—	—	
Per head ..		1·5	4·1	5·6	1·2	0·3	—	—	1·5
				CONTROLS.					
6 yrs. ..	10	17	32	4·9	4	0	0	—	0·4
7 ,, ..	7	8	40	6·9	10	0	0	—	1·4
8 ,, ..	12	27	46	6·1	13	0	0	—	1·1
9 ,, ..	7	6	20	3·7	11	0	0	1	1·7
10 ,, ..	4	7	12	4·8	12	0	2	—	3·5
Total..	40	65	150		50	0	2	1	
Per head ..		1·6	3·8	5·4	1·3	0	0·05	0·03	1·3

* Rickets and controls; Extracted, nil.

in the control group the average per child was 1·3 permanent teeth carious or extracted, while in the rachitic group the average per child was 1·5 permanent teeth carious or extracted. Table III. shows for the temporary molars a similar comparison. The other temporary teeth are not included because it was often impossible in any given case to tell whether incisors had been extracted or else shed either naturally or prematurely. Again, the controls show a very slight superiority, but the difference is only 0·2 teeth per head (controls 5·4 per head, rachitic group 5·6 per head). As will be seen from the table, the number of cases in the various age subdivisions is small, but there is no consistent superiority of controls over rachitic cases. Another method of comparison is to estimate the percentage of teeth, either carious or extracted, in the two groups. This method was not possible for all teeth, as at these ages some temporary teeth were shed naturally, but nevertheless Table IV. shows such a comparison for temporary molars in children of 6, 7, and 8 years, and Table V. for permanent molars in all children.

TABLE IV.—*Temporary Molars: Percentage Carious or Extracted.*

Age-group.	RICKETS.					CONTROLS.				
	Children.	Total molars which should be present.	Carious.	Extracted.	Carious and extracted per cent.	Children.	Total molars which should be present.	Carious.	Extracted.	Carious and extracted per cent.
6 yrs.	10	80	19	31	63	10	80	17	32	61
7 ,,	15	120	26	61	73	7	56	8	40	86
8 ,,	6	48	8	33	85	12	96	27	46	76
Total..	31	248	53	125	72	29	232	52	118	73
			178					170		

TABLE V.—*Permanent Molars: Percentage Carious or Extracted.*

Age-group.	RICKETS.					CONTROLS.				
	Children.	Teeth erupted.	Teeth carious.	Teeth extracted.	Carious and extracted: per cent. erupted.	Children.	Teeth erupted.	Teeth carious.	Teeth extracted.	Carious and extracted: per cent. erupted.
6 yrs.	10	24	6	1	29	10	28	4	0	14
7 ,,	15	58	12	2	24	7	28	10	0	36
8 ,,	6	24	13	0	54	12	48	13	0	27
9 ,,	8	32	12	5	53	7	28	11	0	39
10 ,,	7	28	13	6	68	4	16	12	0	75
Total..	46	166	56	14	42	40	148	50	0	34
Molars filled ..			12					21		

The percentage of temporary molars, carious or extracted, is almost identical in the control and rachitic groups; the percentage of permanent molars, carious or extracted, is rather greater in the rachitic group. If we consider extractions alone, there is a considerable difference: no extractions of permanent molars had been performed among the control cases, but 14 (8 per cent.) of those of rachitic children had been extracted. This difference, however, may have been largely due to more conservative treatment for the controls, since these had had 21 teeth (14 per cent. of permanent molars) filled, as against 12 teeth (7 per cent. of permanent molars) filled in the rachitic group. Another possibility is that the deciding factor in many of the extractions was the degree of hypoplasia rather than the degree of caries, for it is a well-known fact that there is a greater tendency to extract (instead of filling) a misshapen or ugly tooth than one that is smooth and shiny.

COMPARISON OF TONSILLAR AND GLANDULAR ENLARGEMENT IN THE TWO GROUPS.

To compare the tonsils of the two groups, each group was subdivided into three categories: (1) children whose tonsils were not enlarged or scarcely enlarged; (2) those in whom enlargement of the tonsils though definite was yet moderate; and (3) those who had had an operation for removal of tonsils, or whose tonsils were much enlarged.

TABLE VI.—*Percentage of Children with Enlarged Tonsils or Cervical Glands.*

—	Rickets.		Controls.	
	Cases.	Per cent.	Cases.	Per cent.
Tonsils.				
Operation performed or tonsils large	18	40	20	50
Tonsils moderately but definitely enlarged	16	36	12	30
Tonsils scarcely enlarged or normal size	11	24	8	20
Cervical Glands.				
Glands definitely enlarged ..	29	64	23	57·5
,, not enlarged or scarcely enlarged	16	36	17	42·5

There was little difference between rachitic and control groups in the distribution of children in these categories. Table VI. shows that there were slightly fewer control children than rachitic children with normal or scarcely enlarged tonsils. On the other hand, if the number of cases showing some cervical adenitis is considered (excluding enlargement of the post-cervical glands so often associated with an unhealthy scalp), then the rachitic children show a slight preponderance. But the difference in both cases is so slight as to be probably the result of chance.

BREAST-FEEDING AND CARIES.

Since the children were living in their own homes, it was obviously impossible to attempt any estimate of their diet since infancy. Inquiry was, therefore, confined to the duration of breast-feeding and to the sort of food being given at the time of examination, but it soon became evident that present diet gave no indication of past feeding on account of the fluctuations in the economic condition of the families, and the consequent variation in the amount of money available for food from week to week.

TABLE VII.—*Duration of Breast-feeding and Development of Caries in Temporary Molars.*

Duration of breast-feeding.	Cases.	Temporary molars carious and extracted.	Per head.
Under 1 month	16	96	6·0
Over 1 and under 4 months ..	18	97	5·4
,, 4 ,, ,, 8 ,, ..	6	28	4·7
,, 8 ,, ,, 13 ,, ..	26	134	5·2
Over 13 months ..	7	53	7·6

Information about the approximate duration of breast-feeding was available in most cases, and Table VII. shows that breast-feeding for 8 months to 13 months did not prevent dental caries. The individual groups are too small for any stress to be laid on differences between them, though the figures suggest that breast-feeding, if not too prolonged, may perhaps have some value in the prophylaxis of caries.

SUMMARY AND CONCLUSIONS.

This investigation was confined to the effect, if any, on the teeth and tonsils of school-children of vitamin D deficiency in infancy or early childhood. It does not deal with the question whether or not D-deficiency is common at school age, nor whether a deficiency at that age is an important cause of dental caries.

Forty-six children, from 6 to 10 years old, who are known to have had rickets in infancy or early childhood were compared with 40 control children of similar age.

We have no knowledge that the diet of the two groups of children differed materially when early childhood was passed. Hence we do not claim that our control group consisted of children who had always had sufficient vitamin D, but only that in early childhood the available vitamin D for members of this group was much greater than for members of the rachitic group. Moreover, this difference was sufficiently marked to leave an effect at school age in the height, weight, and bones of children of the rachitic group. These averaged 2½ in. shorter, and over ½ lb. lighter than the controls; moreover, one in four still showed deformities of the long bones, and one in five well-marked chest deformities.

The proportion of children with crowding of the permanent teeth was nearly the same in the two groups, but as most of them had only cut a small proportion of their permanent teeth, not much stress can be laid on this.

Hypoplasia of the permanent teeth (as here defined) was almost confined to the rachitic group, 22 per cent. of whom showed hypoplasia, which in 15 per cent. was fairly severe. Since only one control case had hypoplasia, and that slight, these results in children fall into line with Mrs. Mellanby's evidence that D-deficiency in young animals produces defective dental structure.

In spite of the very different incidence in the two groups of hypoplasia of the permanent teeth, the amount of caries of the permanent teeth appeared only slightly greater in the rachitic group than among the controls, and the difference is such that it cannot be held to indicate that vitamin D deficiency in early childhood is an important factor in determining the development of caries. The amount of caries of the temporary teeth was about the same in the rachitic and control groups.

Nor does D-deficiency in early childhood appear to have influenced materially the tendency to the development of enlarged tonsils or of enlarged cervical glands. The two groups were roughly similar in these respects, both showing the usual high incidence of tonsillar enlargement and cervical adenitis which we have learned to expect in children attending a hospital out-patient department.

We suggest that the very similar incidence of dental caries shown in those children who had had rickets and in the controls strongly suggests, if it does not prove, that D-deficiency in infancy and early childhood, with consequent hypoplasia of the permanent teeth, is not the main factor in determining the incidence of dental caries. Such a deficiency may be one among a variety of ætiological factors, but if it were the predominant causative factor then the incidence of caries in our rachitic group should have been far greater than among our controls. The investigation throws no light on the question whether or not D-deficiency in later childhood is a determining factor in the development of caries at this time.

Our thanks are due to the Medical Research Council, which, besides making a personal grant to one of us (H. M.), bore the expenses of the investigation. We are much indebted to Miss F. M. Westbrook, sister-in-charge of out-patients at the Queen's Hospital for Children, and to the nurses for their help, and to Miss Lorel Goodfellow for her assistance throughout.

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THE BLOOD-PLATELETS AFTER SPLENECTOMY.

By J. Forbes Galloway, M.D. Liverp.,
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The three cases here described, all originally showing a thrombocytopenia, were under observation for a considerable time, so affording an opportunity of studying the changes in the number of circulating blood-platelets following splenectomy.

Case 1.—Male, aged 25 years. In the two years preceding admission to hospital he had had three attacks of hæmatemesis, with gradual enlargement of the spleen. Seven blood counts were done during the month he was in hospital before operation; the platelets varied between 69,000 and 168,000 per c.mm. (the latter after transfusion); the red cells increased from 2,130,000 to 4,700,000; the white cells varied between 2200 and 4800 per c.mm. A diagnosis of splenic anæmia was made. He died on the eleventh day after splenectomy.

Case 2.—Female, aged 64 years. For two years she had noticed the gradual onset of weakness, pallor, and abdominal discomfort; her spleen was enlarged. One blood count was obtained immediately before splenectomy, when there were 99,000 platelets per c.mm., 4,800,000 red cells, and 3900 white cells. A diagnosis of splenic anæmia had been made. Thrombosis of the superficial veins of the left calf, and of the superficial veins of the right thigh and calf, occurred on the sixth and twelfth days respectively after splenectomy. She left hospital three weeks after the operation in fair health, and her general condition continued to improve, though six months later she was confined to bed for a few days with a painful herpetiform eruption on one leg. After another 15 months she returned to hospital with generalised enlargement of lymphatic glands, one of which, on section, was found to be indistinguishable from lymphadenoma.

Case 3.—Female, aged 12 years. She was noticed to bleed profusely after tonsillectomy. Some months later she had a severe hæmatemesis, and her spleen was found to be much enlarged. She was admitted to hospital and immediately given a blood transfusion. During the ten weeks that she was in hospital before operation the blood-platelets varied between 59,000 and 168,000 per c.mm. (the latter immediately after transfusion). She had temporary paresis of one side of the body, lasting a few days, and some recurrent epistaxis, both coinciding with very low platelet counts. A diagnosis of splenic anæmia was made and splenectomy was performed. She left hospital four weeks after operation in good health. Since the operation her hair has become definitely a lighter shade. She has also had dental treatment, with some extractions, without displaying any tendency to abnormal bleeding.

The results of the observations on the blood-platelets are shown graphically in the accompanying figures. The numbers along the base of the graphs represent days before and after splenectomy; those along the sides represent platelets in hundred thousands (continuous line) and red cells in millions (interrupted line).

Immediately before splenectomy, the platelets in the three cases numbered 90,000, 99,000, and 59,000 per c.mm. respectively. In each case splenectomy was followed by a marked increase in the circulating platelets, which reached a maximum on the eleventh day of 770,000, 624,000, and 1,024,000 per c.mm. respectively. Thereafter there was a gradual fall in the surviving cases, Case 2 having 483,000 per c.mm. on the 644th day, and Case 3 581,000 per c.mm. on the 364th day after splenectomy. Both these counts were much below the maximum figures obtained in these cases on the eleventh day after splenectomy, but still greatly above the level of the preoperative counts.

During the course of the operation on Case 1, blood obtained from the splenic artery contained 197,000 platelets per c.mm., and blood from the splenic vein contained 153,000 per c.mm.—a reduction of 22 per cent. during passage through the spleen.

FIG. 1.

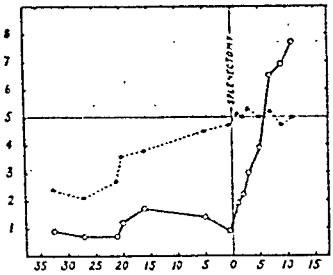


FIG. 2.

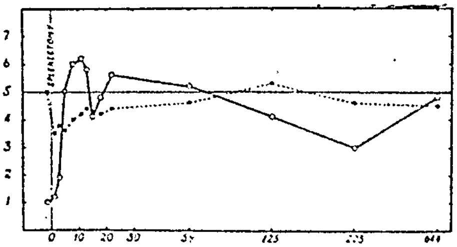
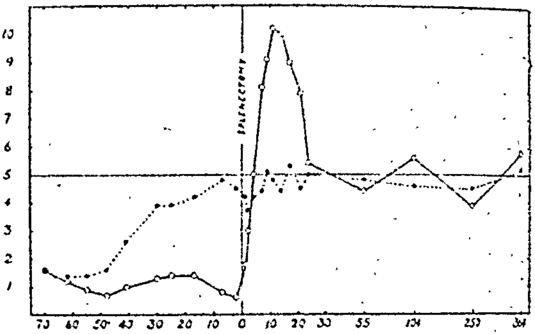


FIG. 3.



In another case of splenectomy, not here recorded, since only the following isolated observation was obtained, blood withdrawn from the splenic vein during operation contained 86,000 platelets per c.mm. A few seconds after its removal from the abdomen the spleen was incised, and the blood which flowed from its substance was examined and found to contain 412,000 platelets per c.mm. The blood in the substance of the spleen therefore contained almost five times as many platelets as the blood leaving in the splenic vein.

SUMMARY.

1. Removal of the spleen led to an immediate and great increase in the number of circulating blood-platelets. In the recorded cases they reached their maximum on the eleventh day. Subsequently they diminished in number, but still remained much above the preoperative level even after 12 months and 21 months.

2. More platelets reach the spleen in the splenic artery than leave it in the splenic vein. There is a great accumulation of platelets in the blood in the substance of the spleen.

3. The observations suggest that the spleen is an important site for platelet destruction.

CLINICAL AND LABORATORY NOTES

A CASE OF ACUTE HÆMORRHAGIC PANCREATITIS.

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THE chief interest in this case of acute pancreatitis lies in the large number of biochemical tests that were carried out. It may be said that in such a severe abdominal catastrophe it is not justifiable even to wait the half hour necessary for carrying out Loewi's mydriatic test, but it may be pointed out that, during the time taken over the various investigations, anti-shock measures were instituted—these being imperative whether or no any other tests or estimations were performed. The patient had a very severe acute diabetic condition, and the estimations that were made proved that she had a well-balanced amount of insulin before operation.

A robust and healthy woman of 52 underwent cholecystectomy by Mr. C. P. G. Wakeley on June 24th, 1931. She had had one attack of biliary colic, but was never jaundiced. At operation about a dozen gall-stones, the size of sago grains, were found in a very thickened gall-bladder. Her recovery was normal in every way, and she was discharged on the eighteenth day. Both before and after the operation the urine was normal, and contained no sugar, acetone, or albumin.

Nearly a month later, on July 19th, after the midday meal, she commenced to vomit, and an hour or so afterwards complained of severe abdominal pain, which was mainly confined to the epigastrium. The vomiting was persistent —"she could not even keep water down." Her doctor, who was called in during the evening, gave her morphia gr. ¼, without alleviation of the pain, which persisted up to July 21st, the day of admission to hospital, but was less severe on that day. Her bowels had been open daily before this attack, but not afterwards. She had no hiccup, but flatulence had been considerable.

On admission to hospital, two days after the attack had begun, the patient was extremely collapsed, with sunken face and anxious expression. No cyanosis of the face or extremities was observed. Her tongue was dry and slightly furred. The pulse-rate was 150 per minute, the temperature 102° F., and the respiration-rate 25 per minute. There was generalised, moderate distension of the abdomen, and only a slight increase of muscular tone. Rigidity was absent, even in the epigastrium. Tenderness was mainly confined to the left side of the abdomen and, if anything, was more marked below the umbilicus. Slight ballooning of the rectum was found on digital examination.

The following tests were carried out, some of which were necessarily done after operation, but the diastase and blood-sugar tests were completed before operation, thus establishing the diagnosis.

Urine.—Reaction, acid; albumin, a trace; sugar, + + +; ketonuria, Rothera + + +, ferric chloride, a trace; urinary diastase, 230 units.

Blood.—Sugar, 0·526 per cent.; serum diastase, 160 units.

Loewi's mydriatic test was strongly positive. The van den Bergh showed a delayed reaction of 0·3 units. Fæces obtained at autopsy were normal in every way.

The patient was given 80 units of insulin and subcutaneous saline. Avertin anæsthesia was used, and at operation free blood-stained peritoneal fluid and much fat necrosis were seen. The peritoneal cavity was drained and the abdomen closed, but the patient died one hour after operation.

At autopsy diffuse hæmorrhagic necrosis of the pancreas and abundant fat necrosis of omentum and peritoneum was seen. The liver showed marked fatty degeneration. No stone was found in the biliary tract, although there was dilatation of the common bile-duct.

The more interesting points in the case may be summarised as follows:—

(1) The large number of biochemical tests that it was possible to carry out, clearly proving the condition before operation. (2) The unusual severity of the diabetic condition, which is explained by the almost total destruction of the pancreas and the long duration of the condition (50 hours). (3) The absence of cyanosis, which is said to be an important sign. The notes of all the cases of acute pancreatitis which have occurred in this hospital during the last ten years—they number five—have been examined, and none of them have any mention of cyanosis. (4) The unusually high temperature for this condition; this, perhaps, is best explained by the marked degree of generalised peritonitis. (5) It was also noticed that when first under the influence of avertin the condition of the patient improved considerably. (6) The absence of rigidity of the abdominal musculature; this was probably due to a combination of poor and exhausted musculature, with the extremely collapsed condition of the patient.

My thanks are due to Mr. C. P. G. Wakeley and Mr. Yates Bell for permission to publish this case, and to Dr. R. D. Lawrence for the advice that he gave and the tests that he carried out.

OCCUPATIONAL SPASMODIC RHINORRHŒA.

By E. Watson-Williams, *M.C.*, M.B. Camb.,
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Spasmodic rhinorrhœa affords a good example of the curious group of diseases known as "allergic." In such cases often enough the coincidence of first onset with an illness, change of residence or of occupation supplies a valuable clue to the ætiology. But in others, although the periodicity or other circumstances point strongly to an occupational cause, the connexion is quite obscure; the attacks pursue the patient from one occupation or residence to another. Again, there may be no material change in the occu- [illegible] to account for the sudden appearance of [illegible] these cases the patient is prone to [illegible], over-work, or nervous strain, recognising clearly the "nervous" element in the causation. Before proceeding to dermal testing and desensitisation, or even to operation, it is worth while to spend time in a careful investigation of the circumstances and of the mode of life of the patient. This may elicit some apparently trivial clue, on pursuing which the case becomes "Quite simple, my dear Watson!"

Case 1.—Miss A., aged 28, came to me in June, 1927, complaining of sneezing attacks, associated with intense watery nasal discharge, irritation, and watering of the eyes; and during about a year nocturnal asthma, sufficiently severe often to wake her up. The attacks came on at any time of the day, and throughout the year, though they were worse in sunny weather. They had started four years' previously, and had at first been ascribed to hay-fever. She lived with her widowed mother who kept a village shop. I inquired about animals; they had had a cat and had kept poultry "for years"; she did not think these could be concerned, for when she stayed with a sister who also had fowls she was quite free. Her own view was that the extra work entailed in looking after the shop and nursing her mother during a severe illness in the spring of 1923 had brought on the attacks. The nose appeared quite normal, but she had waited for a day when the attacks were better to come in to see me. Further questioning showed that from the time of her mother's illness she had taken over a large part of the domestic work, including feeding the fowls, collecting eggs, and cleaning the fowl-house. She agreed to get someone else to do this, and finding the attacks disappeared, gave up keeping poultry with complete relief from the attacks.

Case 2.—Miss B., aged 25, a wholesale chemist's assistant, came to me on Sept. 18th, 1928, complaining of constant colds and violent sneezing attacks—"my nose simply pours." The attacks began rather suddenly nine months before, and she thought they must be due to intensive study for her final pharmaceutical examination which she had passed in October, 1927; she had been working in the same dispensary for five years. The attacks were clearly connected with her work, as they never started on Sunday nor when she was on holiday. The obvious advice was to abandon her profession, but as usual this was not practical *politics; also, she had been dispensing for some years* without trouble. Further questions elicited that the attacks usually came on about 4 P.M. and often lasted over the next day, seldom longer. They tended to be most frequent on Tuesdays and Fridays. The nose on examination appeared quite normal. The only factor to explain why work she had done for so long without trouble should suddenly become noxious was the passing of the examination! That is to say, she was now fully qualified, and employed in handling poisons, including "dangerous drugs," which had formerly not been part of her work. Tuesdays and Fridays were the days when "stocks" of these drugs were usually made up. Cocaine did not affect her. I advised that she should try leaving off the handling of opium and its derivatives, to which her employer agreed. For a month she was quite free from attacks. Further experiment showed that she could handle opium, extract of opium, tinct. opii, or liquor. morph. without suffering; but whenever she had to put up powdered morphine sulphate or tartrate the attacks followed. Wearing a mask did a little to mitigate the distress. The only attacks she had after this could be directly traced to handling these drugs, usually when other dispensers were on holiday. Since she left her employment to get married she has been entirely free from rhinorrhœa.

Case 3.—Mr. C., aged 45, came to me in September, 1931, complaining of severe attacks of sneezing followed by intense nose-running, coming on every Sunday morning; by the evening he was almost prostrated, and felt very unwell all next day. The attacks had been going on for 13 years, during which time he had been an ironmonger and a lorry driver in the North of England, later a gardener in Bristol, and now a cemetery attendant. He had now to work on Sundays occasionally, and the attacks came on as regularly then; the only time he was free was when he was in camp with the Territorials at the seaside—an inland camp did not help. Employers did not like a man who was always ill on Mondays, so he had become a teetotaller, except during the time when he was in camp. I wondered if beer was a cure, but he had had the same idea and given the suggestion sufficient trial to convince him of its futility. He nearly always spent his Saturday afternoons in his own garden; flowers would not be in season all the year round but could it be bone manure? No, for the attacks came on even when he had not been in the garden. He had no dog, and had only had a cat for four years. The attacks

(Continued at foot of next page.)

MEDICAL SOCIETIES

MEDICAL SOCIETY OF LONDON.

AT a meeting of this society held on Nov. 23rd, the President, Mr. HERBERT TILLEY being in the chair, a discussion on the

Methods of Determining Liver Function

and their value was opened by Sir HUMPHRY ROLLESTON and Prof. E. C. DODDS, whose papers appear at the front of this issue.

Dr. W. LANGDON BROWN referred to a paper he read before the society some years ago,[1] and said he did not think the lipase test had been of much value to him in the intervening period; but the van den Bergh test, especially if supplemented by the icterus index, had been of definite value. The lævulose test had been rather replaced by the galactose test. As to the rest of the tests, he feared failure had to be confessed. Important was the introduction of dye tests for the gall-bladder, and on these he agreed with the remarks of both the openers. Prof. Dodds had said that the symptoms following the removal of a large part of the liver were those of hypoglycæmia and/or hyperinsulinism; recent observations tended to confirm the view that for the development of its antitoxic power the liver required a good store of glycogen. It was now known that insulin did two things: it increased the store of glycogen in the liver, and it reduced the blood-sugar, probably by storing it in the muscles. If there was a severe deficiency in the glycogen reservoirs, as in the removal, by experiment or disease, of a large part of the liver substance, the normal supply of insulin was debarred from one of its chief tasks—viz., the storage of glycogen in the liver. Not much had been done in observing the glucose-tolerance curve as a test of insufficiency, but there seemed reason to expect some advance on these lines. Dr. G. H. Tuttle had pointed out that in dogs from which the pancreas had been removed, insulin could still be detected. Tuttle hypothecated the presence of cell insulin, and quoted examples of new growths of other parts of the body which were accompanied by hypoglycæmia. Adrenalin was a hormone which led to an emptying of the glycogen reservoirs, and that was antagonistic to insulin. If there was a growth of the adrenal gland, then as insulin had lost one of its antagonisers one could understand the occurrence of a relative hyperinsulinism. He thought it was necessary to look again at the very close inter-relation between the pancreas and the liver. It should be remembered that if hepatic toxæmias were to be benefited by a storage of insulin—as he considered they were—the physician must not merely give insulin in the *treatment of such conditions, but must also* give large quantities of dextrose. In a proportion of cases insulin was not necessary. He had seen cholæmic coma benefit from the simultaneous giving of insulin and dextrose. Perhaps it was along the lines of carbohydrate metabolism that medicine would get a little further in the tests for renal inefficiency.

Dr. A. F. HURST said that some test was required for early stages of liver disease, before any structural change had taken place. This was supplied by the lævulose test; it enabled one to recognise a disturbance of function which was completely recoverable, but not if allowed to proceed. Cirrhosis, or so-called alcoholic poisoning of the liver, was common in private patients. Not only was this condition found in elderly people who had been free with alcoholic consumption for years, but also in a number of bright young people who frequented cocktail parties, and were tired out with late nights and suffered from indigestion. The lævulose test then showed definite hepatic insufficiency. After a time, on a proper dietary and abstinence from alcohol, the resuls of the lævulose test was normal. A remarkable degree of hepatic deficiency was recoverable from completely. In gall-stone cases requiring operation the persistence of symptoms after operation was often due to associated hepatitis, perhaps also to cholangitis. Should there be evidence of infection after *operation* he advised the giving of a large amount of hexamine and Epsom salts, as much as grs. 300 of the former. Olive oil could be given before meals, with the same object. The question had been discussed whether catarrhal jaundice was due to hepatitis. He considered there were two types of cases clinically indistinguishable, one due to real hepatitis, and a commoner one due to gastro-duodenal catarrh and obstruction. He had found that most of the cases of catarrhal jaundice gave a normal lævulose reaction. He wished to insist on the great value of the lævulose test, which did not greatly differ from the galactose test.

Dr. J. W. MCNEE pointed out that it was the discovery of methods of estimating the blood-sugar which made possible the extraordinary series of experiments which Mann carried out. Mann was able to remove from a number of animals so much that the abdomen contained no more than kidneys and suprarenals. Afterwards, up to 30 hours after the operation, provided the blood-sugar was adequate, the animals walked steadily, almost as if they were normal. None of the hepatic tests was really reliable for most of the purposes they were intended for. He agreed that the van den Bergh test was valuable in differentiating clinical cases of jaundice, but it did not come up to expectations. It had, *however*, given great help in the experimental investigation of hepatic disease. Dr. Hurst's results did not, he said, accord with his own observations. As a physician his chief anxiety was to know what margin of safety existed in a given case. It would be useful to know whether there was any terminal test, or whether certain tests developed in a definite order. He did not think much advance could reasonably be

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[1] See THE LANCET, 1923, i., 541.

(*Continued from previous page.*)

started before church time, so incense could not be blamed. The only difference from ordinary routine that applied to Sunday was that he got up two hours later, hardly a sufficient explanation. However, this supplied the clue; on Sunday he cooked himself a hot breakfast of bacon, on other days he had tea and cold food. I advised him to give up his bacon—a plan from which he was averse—for he was very fond of it, and it never gave him indigestion. He left me in much the same mood as Naaman the Syrian after his first visit to Elisha. Like Naaman, however, he resolved to give the simple prescription a trial. A month later I had a letter apologising for not coming to see me again, "as it was quite unnecessary; I have not had another attack."

Although few cases show its value so clearly as the above, they seem worth citing in order to illustrate the importance of a careful anamnesis.

expected until more was known about hepatic physiology. He uttered a warning against taking the results—for instance, in uric acid metabolism—arrived at in dogs as necessarily applying to human patients. The van den Bergh reaction was of particular use in diagnosing damage from salvarsan injections. He had found it also of value in watching hepatic disease associated with jaundice.

Dr. G. E. **Beaumont** said he hoped the actual state of knowledge—or the lack of it—on this subject would be disseminated among the leaders of the profession, so they might cease to expect examinees to have an intimate knowledge of what happened when doing functional tests.

Dr. N. **Hamilton Fairley** also spoke of the need for caution in accepting laboratory results as applicable to human beings. Mann himself said that in dogs whose liver had been removed and in which there were large quantities of indirectly reacting bilirubin, the latter did not appear in the urine of the dog as indirectly reacting bilirubin at all, but it gave a direct reaction. Mann seemed to think that the modification of the bilirubin was dependent not only on the passage through the hepatic cell, but it could be as well reproduced in the dog in its passage through the renal cell.

Dr. C. E. **Newman** said that the van den Bergh reaction was valuable in detecting jaundice before it was evident clinically, even while the quantity of pigment was normal. When a patient suffering from obstructive jaundice commenced to get an increase in the delayed pigment present, it was a sign that the liver was being grossly damaged.

Sir **Leonard Rogers** said that while he was in Calcutta experiments were made with the object of ascertaining the condition of the liver function in amœbic liver abscess, and he tried to persuade surgeons to aspirate these abscesses instead of incising them, as the latter invariably brought in its train a secondary infection. But he was able to establish that patients had been cured by removing the pus from the liver.

Dr. A. P. **Cawadias** thought much of the present uncertainty would vanish if the physician ceased to confuse the hepatic insufficiency of the physiologists who took away a large part of the liver, with that seen clinically, when there was compensatory effort on the part of other organs. If practical results were to be obtained, tests of hepatic efficiency must be interpreted in the light of clinical observation. Liver cells were about the most fragile in the body, and when obstruction of bile-ducts occurred there was a lesion of the liver as well.

Sir **William Willcox** agreed that many of these tests were not true tests of liver function, they were modified by so many other conditions. What clinicians wanted to know when they were doing a liver function test was, what was the condition of the liver cell, not so much in regard to jaundice, but in reference to the general condition of health, indeed of life itself. He had seen a large number of deaths from icterus gravis, acute hepatic insufficiency; he saw many in the war, and also a number due to salvarsan. The illness preceding death was longer than in the case of hyperglycæmia. In icterus gravis the symptoms commenced rather like those of insulinæmia. In many cases the temperature rose to 105° or 106° F., and often an acute nephritis condition accompanied the liver disease; within a few hours of death there was a high blood-urea. He looked forward to the establishment of some test, like the blood-urea test, which would give a quantitive measure of the efficiency of the liver. Admittedly the best test at present available was the lævulose test, as it gave an indication of how the liver was working.

REPLY

Sir **Humphry Rolleston**, in reply to Sir Leonard Rogers, said that amœbic dysentery, at any rate in Calcutta years ago, was very prolific, in subsequent years, in producing definite cirrhosis.

Prof. **Dodds** said he did not think there was much difference in the values of the lævulose and the galactose tests, but he agreed with Dr. McNee that the latter was of little use except in conditions associated with jaundice, whether the jaundice was catarrhal or obstructive. He did not think it was intended to put forward hypoglycæmia as the sole explanation of the symptoms of acute hepatic insufficiency. He did not see how figures could be interpreted clinically unless they were first worked out experimentally.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OBSTETRICS.

At a meeting of this section on Nov. 20th, with Mr. **Victor Bonney**, the President, in the chair, Dr. **Louisa Martindale** read a communication on recent advances in

X Ray Therapy in Uterine Disease.

During the last few years, she said, the technique of deep X ray therapy had advanced rapidly. This advance had been in part due to improvement in the various types of apparatus and hot cathode X ray tubes, and in part to a far-reaching clinical research on the late or end-results in treated cases. The technique of using X rays for non-malignant uterine disease (glandular hyperplasia of endometrium, fibromyomata, and adenomyomata) had undergone three stages of development in the periods 1902–13, 1920, and 1927–29. In the second period the "crossfire small field method" was used. The radiologist worked at a lower voltage, using 18 or more portals of entry, filtered through 3 mm. of aluminium, and gave the treatment every three weeks, the total treatments being four to six. Béclère, of Paris, used larger fields and gave the treatment each week or each fortnight. In 1920 was introduced a higher voltage in the 1° current, 0·5 zinc was used as a filter together with 2 mm. of aluminium, and the portals of entry were reduced to four. Also, there was only one sitting, lasting 3½ to 4½ hours. It was now possible in cases of climacteric hæmorrhage to give a castration dose, sufficient, that is, to ensure a permanent amenorrhœa, in from 35 to 90 minutes. In a large series of cases of metropathia hæmorrhagica collected by Gauss and his colleagues, 95 to 99 per cent. were declared to be clinically cured by this technique. The treatment had been valuable in 98 per cent. of about 18,000 cases treated by deep X ray therapy which were followed up. The contra-indications were well known to be the following: uncertainty in diagnosis, possible pregnancy, submucous fibromyomata, pedunculated subperitoneal fibromyomata, urgent pressure symptoms, dangerous hæmorrhage, necrobiosis, fibroid complicated by possible malignant disease, very large fibroids, and suspicion of serious disease in another viscus. These contra-indications definitely limited the number of cases it was safe to treat by deep X rays. In Dr. Martindale's own cases 52 per cent. had been dealt with by operation, 44·8 per cent. had alone, followed by virus in 24 hours, immunity to a subsequent inoculation was not produced.

Methods of immunisation by giving a mild disease might involve the danger of spreading the disease where it did not already exist. We might probably confer in most cases a disease so mild that there was no danger, but if very many animals were being vaccinated, some would be sure to respond abnormally and might develop a disease not so mild, capable of infecting others. Waldmann, Trautwein, and Pyl had reported that cattle hyperimmunised against foot-and-mouth disease might excrete virus in their urine as long as 246 days after inoculation. Studies on similar lines were badly needed in other virus diseases.

DISCUSSION.

Prof. W. J. Tulloch reported experiments dealing with the vaccinia (variola) flocculation test. He said that the precipitate obtained by flocculating extracts of vaccinia material with antiserum contained vaccinia virus, but the virus thus treated was peculiar in that its infectivity was much diminished. This sensitised virus might be shown by intratesticular inoculation to be living. It stimulated the production of immunity and might therefore have a practical application as an immunising inoculum with reduced danger of undue local reactions or of untoward sequelæ. By filtration it had been possible to separate extracts of vaccinia into a filtrate which was flocculable but not infective, and a residue which was infective but not flocculable. The flocculable substance might be a product of the living or of the dead virus or of the invaded tissue or of a combination of these. It was tempting to suggest that the relation of the flocculable substance to the virus was akin to the relation existing between pneumococci and their specific carbohydrates.

Major G. W. Dunkin stated that a dog which had recovered from a natural attack of true virus distemper appeared to enjoy lifelong immunity to further attacks. Instances of second or third attacks had been recorded, but in view of the admitted difficulties experienced in diagnosis of the disease it was not clear whether these reported recurrences were true distemper or some bacterial infection. He said that foot-and-mouth disease, in contrast to dog distemper, did not appear to confer any lasting immunity, possibly because there was more than one strain of virus. It had been found from work conducted on some 20 strains of dog distemper that all these cross-immunised. Immunity to dog distemper had been induced in dogs and ferrets in a number of ways. Carbolised and heated virus had been used as vaccines, but the most successful results had been obtained from formolised virus, and this method was in general use to-day. The immunity conferred by the injection of vaccine alone in one or two doses was certainly not lasting. Vaccine followed after a certain interval by living virus produced an active and durable immunity. For this, both vaccine and virus must be of known high power. The simultaneous serum-virus method recently employed appeared to give good immunity, but had not yet stood the test of time. Mixtures of serum and virus had so far proved useless for protection against dog distemper. There appeared to be a stage in the dehydration of virus stored in the semi-dried condition which would fail to reproduce the disease but which would act as an efficient antigen. Unfortunately it was not possible to say exactly how long it took before this stage was reached, because the time varied with different samples of virus, and even with the same virus on different occasions. This method was therefore not a practical one for the antigenic power varied, while the necessary tests on animals were being carried out. Subinfective doses of distemper virus known to be living did not appear to be of value.

Major Dunkin then discussed the nature of the immune state. Is it, he asked, due to the persistence of the specific antibodies in the animal system, to the constant stimulation of the antibody factory as the result of frequent contacts with open cases of the disease, or to the persistence of living virus in the animal system constituting a constant stimulus to the manufacture of fresh antibody? As the administration of virus is necessary for the establishment of durable immunity to dog distemper, it was most likely that the living virus persisted in the tissues of the immune animal.

Dr. S. P. Bedson said that it was unknown whether an attack of psittacosis conferred lasting immunity, but convalescent serum had very little protective power, and mice which had recovered had but a poor immunity. Definitely killed vaccine of psittacosis differed from that of foot-and-mouth disease in producing good immunity. Working with herpes virus, Dr. Bedson had been able to produce good immunity by killed vaccine. The virus had been killed by formalin, and could not be reactivated by passage through an animal. He had found that the living virus did not give immunity. He suggested investigation of other methods of killing the virus, and of bringing about delayed absorption of the vaccine.

Mr. R. E. Glover said that in the lower animals immunisation by means of immune serum with active virus had given the best results. The danger of creating fresh centres of infection through the agency of vaccinated animals had led him to investigate the possibility of producing an active immunity with vaccines which were almost or quite inert. Certainly a comparatively solid though brief immunity might be induced by two or more doses of killed virus. Working on pigeon-pox he had produced by means of dilution and the action of formalin a series of emulsions with diminishing virus contents. Apparently a point was reached at which the quantity of living virus was insufficient to set up the disease, but there still remained an adequate amount to provoke an immunity response. At a further stage the virus was destroyed and was antigenically inert. The antigenic power of cultures of virus on tissue cultures proved disappointing. It seemed that either the body cells played a part in the mechanism of immunity to which the cells of tissue culture might not be suited or alternatively the virus in the form in which it occurred in tissue culture might be unduly sensitive to chemical agents.

Dr. M. H. Gordon, F.R.S., suggested that if the nature of one virus were worked out fully the other similar viruses might be more readily understood. He had found that the majority of vaccinia virus might be held up by a filter, and microscopical examination of the virus showed minute bodies.

Prof. J. C. G. Ledingham, F.R.S., said that by working with those viruses which are within the limit of microscopical vision we had good hope of attaining a greater precision in the whole field of investigation.

Major R. R. Dalling stated that in practice immunity to dog distemper might be produced by two doses of killed (formolised) antigen or by killed vaccine followed by active virus. If antiserum and virus are given the amount of serum governed the result; if present in excess, it would destroy the virus from the infective and antigenic point of view.

Dr. Wilson Smith reported that he had extracted from vaccinal material a substance which would withstand boiling (thus leaving no possibility of its containing living virus) but which would give a specific precipitation reaction with vaccinal immune sera. This suggested that vaccinia virus might have a complex antigenic structure. He wondered whether the precipitating body might possibly be analogous to the specific soluble substances derived from pneumococci. If this were so, it was conceivable that the substance might be useful as a non-living immunising agent if it could be made antigenically active by linkage with a protein.

Prof. G. H. Wooldridge said that the possible persistence of infectivity of a dog after immunisation to distemper, although of no great consequence while the dog was at large, because the disease is so widespread, became a serious consideration in hospital.

Dr. R. A. O'Brien said that in his experience he had never had proof that the artificially immunised dog was infective.

Captain S. R. Douglas, F.R.S., said that dogs with a severe reaction while being immunised had been known to pass on the disease.

Mr. J. T. Edwards, D.Sc., said that in India in extensive immunisation by the serum simultaneous method of cattle to rinderpest no case of transmission of the disease from the immune to the normal animals had been known. The immunity lasted longer in adult than in young animals.

The President said, in conclusion, that it was unlikely that dead virus could compare with living virus in quantity. He wondered how effective really large doses of dead virus given at several sites might be. The idea that a virus might be split into two bodies, one of which might be a haptene, was new and stimulating.

INTERNATIONAL SOCIETY OF MEDICAL HYDROLOGY.

At the annual meeting of this society held at the Institute of Hygiene, Amsterdam, on Nov. 1st, one of the principal subjects for discussion was the rôle of

Chill in the Causation of Disease,

Dr. J. van Breemen, the President, remarking that in Holland at all events no one doubted its influence. Prof. van Loghem set forth his conclusions in a discourse based on an extensive collective investigation of the incidence of respiratory colds (coryza). He found a rise and fall in this incidence, in all parts of the country, corresponding to the fall and rise of air temperature. Certain respiratory diseases were clearly related to some disturbance in the normal thermal regulation induced by cold. Such disturbances could be observed even in healthy children from a fall of night temperatures. In coryza and some forms of pneumonia they were serious enough to bring about an infection from "commensal" (latent) organisms.[1] His data also supported the idea that "catching cold" reduced the resistance to influenza and pneumonia. The factor of circumstances thus becomes one of primary ætiological significance. As regards the prophylaxis of the diseases resulting from chill, this should, he thinks, consist first of passive measures to conserve and to increase the heat of the body by external warmth, and then of active measures to increase the production of heat within the body.

Prof. H. Schade, Director of the Kiel Institute of Physiochemistry, contributed a paper based on studies of the different forms of illness resulting from chill in German soldiers on active service in 1916–17. It was clear that the incidence of such illness was associated with the combined action of cold, moisture, and wind, as a result of which the normal balance between the heat gained in the tissues and the heat lost to the surroundings was disturbed. To measure this condition his own frigorimeter, or that of Dorno, could be used. Charts were exhibited, showing a close parallelism between the incidence of frostbite, of catarrhs, and of muscular rheumatism, a parallelism which he confirmed by copious statistics from the German peace-time army. Schade, like others, holds that the pathogenic action of cold on the body is of three kinds. There is, first, the local action on the superficial parts, which causes a gel formation or gelosis, with hardening of tissue. This change in the skin or muscles can be readily measured by the elastometer or even by the finger. If not extreme, it is reversible by heat. Secondly, cold has a remote effect on internal or distant organs, the kidneys, urinary bladder, and intestinal tract being especially liable. Such remote effects are probably produced through the sympathetic and may be likened to that caused by adrenalin. Lastly, there are abundant proofs that cold diminishes the resistance of the body to certain infective diseases. The periods of prevalence of catarrhal chills in Schade's diagrams are regularly followed by increase of infective diseases. In various ways, therefore, singly or in combination, cold may interfere with the functions of the body. The loss of elasticity in the skin and soft parts after exposure to cold may be almost hourly observed, especially in the neighbourhood of the joints, whilst chapping and cracking indicate local cold trauma of a colloidal nature. It is important to remember that chilling has a latent period, sometimes extending over several days; the stronger the stimulus, the shorter being the latency. Its cumulative action is also a fact of great practical importance, as has been noted by van Breemen and Fortescue Fox in connexion with rheumatic disease. The organism goes on resisting up to a point, until suddenly a barrier seems to be broken down and rheumatism, perhaps a progressive arthritis, sets in, which can hardly be stopped. Moreover, the reactions to cold are very variable; if the trauma is sudden or severe the thermal defence may respond vigorously or it may be taken by storm: if the attack is slow and insidious, as is often the case in rheumatism, the defensive forces may not respond at all and resistance may suddenly give way; if it is prolonged, body heat as a whole may fail.

To illustrate the more immediate effect of impressions of cold in peno-thermal (chilly) subjects, with subnormal temperature and usually cold and clammy skin, Prof. Schade cited the case of a person, leaning for a short time against a damp wall, who was soon afterwards attacked by muscular rheumatism in the corresponding area. He emphasised the fact that the results of cold traumata, from a slight easily reversible gelosis to an actual freezing, are not demonstrable by the microscope, and that the action of cold upon the body and the disorders arising

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[1] See Journal of Hygiene, 1928, ix., 28.

28 patients treated up to 1924 by the "old technique," of external X ray treatment with surface application of radium, 7 obtained primary healing, by which is meant the disappearance of both primary tumour and metastases; of 14 cases treated up to 1927 by the new technique—teleradium followed, if necessary, by surface or intratumoral application of radium, or by endothermy—6 were primarily healed; while of 8 cases treated during 1930 by the teleradium technique, improved in the light of further experience, primary healing was obtained in 7. In the first of these three groups the disease recurred in all the patients; in the second group there was recurrence in four of the six; while in the third group only one of the seven yet shows recurrence, though here the time is, of course, too short for useful comparison. Of the four cases of lympho-epitheliomata treated before 1928, all were primarily healed, and have remained free for three years or more, except one in which death took place, without recurrence, from pneumonia six months after treatment. Of 35 cases of sarcoma, 25 were primarily healed, and 15 of these have remained free from disease for over three years.

The fact that patients come to hospital at very different stages of disease renders any attempt to compare percentages of cures somewhat fallacious, but such figures as these give grounds for hope in the future treatment of cancers of this region, which are notoriously of a high degree of malignancy, where surgical treatment can claim but very few successes. BERVEN believes that the local reaction from teleradium is less severe than that from X rays, which often produces severe dysphagia. His work abounds in careful analyses of every class of malignant tumour of this region; it is a credit to himself and to the Institute of which he is the chief, and will be of great value to all workers in this field. The progress thus far achieved makes us look forward to hearing more of English experience, and also of Prof. VON EICKEN's work at Berlin, when the Section of Laryngology discusses malignant disease of the hypopharynx at the Royal Society of Medicine this (Friday) evening.

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EPONYMS.

THE practice of attaching personal names to diseases is recent. Dr. Isidor Fischer, Reader in the History of Medicine at Vienna, tells us that he can find but few examples in medical literature of the eighteenth century, and that only in the middle of the nineteenth did they become at all frequent. In the preface to his collection[1] he discusses how the use of eponyms has come about. To name a disease is not simply to identify it but to enable its user to classify it; and the difficulties of classifying disease are still with us, they are perhaps only now beginning to be realised. In 1869, when a joint committee appointed by the Royal College of Physicians of London first drew up their Nomenclature of Diseases, they did so with the end in view of fixing definitely, for all places, the things about which medical observation is exercised, and of forming a steady basis upon which medical experience may be safely built. The committee aimed at making their list consist as far as possible of short names—names comprised in one word or in the fewest words, and implying no erroneous or doubtful theories. They did not exclude names merely because they seemed to express vague or imperfect knowledge—such as dropsy, convulsions, palsy—because, as Dr. Farr observed, a refusal to sanction such terms as these in the registration of diseases would have an obvious tendency to encourage reckless conjecture.

When fixed names have been given to diseases their classification becomes a matter of some importance. Diseases may be classified according to their symptoms, to their causes, to their intimate nature, to the tissues or to the systems of the body that are affected, or to the parts of the body as they lie anatomically. And after much consideration the committee of the R.C.P. resolved to base classification upon anatomical considerations. Conceived on these lines the nomenclature was long in taking shape, and the ambition of the compilers to be the founders of an international nomenclature was not realised. After the first edition the French and German synonyms were omitted, and later the Latin and Greek equivalents went the same way. As time went on factors of causation entered more fully into both nomenclature and classification; culminating in a courageous attempt by the late Prof. E. S. Reynolds to group these factors under a few precise headings. In his Bradshaw lecture[2] of 1917 he named ten of these: injury, food and feeding, poisons, occupation, stress, abnormal metabolism, abnormal age changes, neoplasms, parasites, and heredity; and he drove his point home by imagining the piquant situation of a thousand healthy men and a thousand healthy women each aged twenty years, free to marry, and with no hereditary taint, put to live in a perfectly healthy island with sufficient flora and fauna to maintain life, and by forecasting the various affections from which they and their progeny to two or three generations were likely to suffer if free from admixture with the rest of the world. Reynolds was only partly successful and it was such difficulties as he encountered which led Allbutt to state so definitely that the name of a disease must not be a seal but a label. From this point of view, as Dr. Fischer aptly remarks, eponyms are the ideal names for diseases, for they say in fact nothing whatever about the nature of the disease. Eponyms have often indeed been born out of the dilemma how to label without prejudice a newly discovered syndrome of the nature of which little is known. Dr. Fischer himself thinks that the recent spate of eponyms—his collection contains more than 500 items—has had but little to do with Allbutt's principle enunciated above, or even with the desire to erect a perpetual monument to the discoverer of a new disease, but is rather the outcome of our hasty times and the result of a tendency, visible in other departments of life, to terseness of expression. Editors of medical journals must take some share of praise or blame for the situation; to the medical editor the saving of space has become the kind of obsession that the saving of rates is to the middle class. But while convenience may well have come first, we must recognise the justice of retaining names such as Hippocrates, Galen, and Mithridates, in association with the ideal of medical fidelity, the exact use of drugs, and (at all events on the continent) the principle of immunity. In their narrower use names perpetuate the discoverer rather than the victim, with the happy exception of the legend that the first Roman emperor found the birth canal too narrow for his entrance into the world.

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[1] Die Eigennamen in der Krankheitsterminologie. Reprinted from the Wiener Medizinische Wochenschrift, 1929–30. Vienna and Leipzig: Moritz Perles. 1931. Pp. 144. RM.5.

[2] See THE LANCET, 1917, ii., 703.

The names of Cæsar and Hippocrates are used everywhere but most others form a bad basis for international use. Nothing could exceed the directness and simplicity of such terms as Bell's palsy and Pott's disease, for neither of which does there seem to be a rival claimant, although the convenience in the latter case is slightly obscured by Latinists who cannot decide whether to write Malum Potti or Malum Pottii, and by the playful spirit of the continental derivatives Pott'scher Buckel and Gibbosité pottique. Similarly Legg's disease would be an admirable substitute for osteochondritis deformans juvenilis coxæ, had there not been rival claimants for priority in the persons of G. C. Perthes (Tübingen) and Jacques Calvé (Berck-Plage). The trouble is even worse with Graves's disease, a label which Sir Humphry Rolleston considers much more satisfactory than to qualify an incomplete case of exophthalmic goitre with the absurd words "without any exophthalmos or goitre"; but in this country the claim of Caleb Parry of Bath is weighty, not to mention those of Sir Henry Marsh, James Begbie, and Sir William Stokes. The matter has been neatly summed up by Dr. J. Hirschberg when he wrote "Flajani has shown the way; Parry has the priority of having first described a new disease; Graves discovered it again and pictured it more exactly; Basedow discovered it once more and was the first to describe it completely"; and so it remains on the continent Basedow's disease, lending itself to symphonic treatment in the forms Basedowoid and Struma basedowificata. Dr. Fischer has been to the trouble not only of citing the names but of documenting the claims of their owners to the description of the diseases to which their names are attached, and in so doing he has earned the gratitude of all who are concerned with precision in the nomenclature of medicine.

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WINTERING IN ENGLAND.

A MEETING is to be held in London next Wednesday to consider a public statement on the winter health resorts of this country. Such a statement will, it is hoped, show clearly that there are advantages as well as disadvantages for invalids in the present inhibition of foreign travel, and may lead people to take more interest in the proper use and development of national assets. These assets are clearly visible, without the aid of patriotism, to the discerning eye, and the names of the signatories of the announcement on p. 1263 are a welcome guarantee that the proposed statement will base itself on common-sense, not national pride. The meeting on Wednesday, if adequately attended, will give the proposal further authority, and we hope that all members of the profession who hold any views on the subject will make a point of going to it. For the question arises whether something more important than a mere statement could not come out of this gathering. Would it not be possible, perhaps, to form a small body of medical men, independent of all financial interests, who could give useful advice not only to the public but to the health resorts themselves? In the first place, if the health-seeker's curiosity is aroused by a letter to the press, it might reasonably be satisfied by a more detailed account of the general and regional characteristics of the coast and inland climatic stations. A winter health resorts committee might begin by issuing such a description in pamphlet form, and then go on to consider the ways in which accommodation and treatment at these resorts should be improved—e.g., by the grading of hotels and medical establishments. It is no part of the duty of our profession to hide unwelcome truths, and we trust that nothing will be done to advertise British institutions beyond their deserts. At the same time it is not too much to hope that organised medical interest in this particular problem might help our health resorts to stand firm by their own merits when they cease to be protected by circumstances. Their improvement might mean a good deal to the vast majority of our people who can never go abroad in any case.

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DR. Arthur J. Hall has been appointed emeritus professor of medicine in the University of Sheffield.

THE Thomas Vicary lecture of the Royal College of Surgeons of England will be given at the College at 5 P.M. on Thursday, Dec. 10th, by Colonel W. P. MacArthur. The subject is the Surgeons and Oldtime Plague, and visitors will be admitted on presentation of their cards.

DR. Vincent Dormer Harris, who died on Nov. 27th at Milford-on-Sea in his 81st year, was consulting physician to the City of London Hospital and well known as a specialist in diseases of the chest.

WE have also to record the death on Nov. 29th of Mr. C. A. Leedham-Green, late professor of surgery in the University of Birmingham.

THE Medical Directory for 1932, which has just reached us, contains 55,480 names, an increase of 445 on last year, two-thirds of which is due to additional entries in the Provinces. The medical report on British spas and seaside resorts has been revised and enlarged to 44 pages.

expressed to O'Connor verbally and in writing was completely confirmed. It is understood that Dr. O'Connor has been invited to read a paper on filariasis before this Society next May.

THE TIME OF CONCEPTION.

IN a paper[1] entitled The "Safe Period": an Established Certainty, Dr. R. de Guchteneere, of Brussels, begins by going over ground covered in our annotation of Sept. 12th (p. 599). Observations by several gynæcologists, he says, show a striking degree of unanimity in fixing the fourteenth to the nineteenth day after the beginning of menstruation as the usual time of ovulation. Once the ovum is freed it has small chance of survival, and there is therefore little likelihood of conception at the end of the intermenstrual period. On this basis, and following the observations of Siegel, he has advised his patients to limit intercourse to the six or seven days before menstruation if there is some medical reason for avoiding impregnation. But in the last year or two he has changed his practice in conformity with the views of K. Ogino, a Japanese gynæcologist, who maintains that the peak of ovulation determines the following menstrual period, and has no connexion with the preceding one. The truth of this contention has obvious practical importance to women whose usual intermenstruum is considerably longer than the normal. According to de Guchteneere, Ogino believes[2] that ovulation always takes place between the twelfth and sixteenth days preceding the next period; later ovulations, he says, are pathological and cannot lead to a pregnancy, since the fertilised ovum arrives in a uterus no longer in condition for implantation. Since there are good grounds for thinking that the non-fertilised ovum has a short life, Ogino concludes that during the 11 days preceding menstruation intercourse will not lead to conception. This statement should be fairly easily disproved if it is untrue. So far, however, de Guchteneere appears to be satisfied with the results of recommending the last 11 days as a "safe period."

MOVEMENT OF THE ALÆ NASI.

NO account of the clinical picture of pneumonia in childhood is complete without mention of the characteristic movement of the alæ nasi, and an interesting analysis of this sign has now been made by H. Seckel[3] of Hamburg. Using a polygraph to register the movements of the chest and of the nostrils so that their exact time-relationship could be studied, he is able to confirm the views of previous observers that there are at least two main types of respiratory movement of the nostrils. These are first the type seen in pneumonia, where there is a pre-inspiratory dilatation of the alæ nasi, and secondly that seen in other conditions such as asthma and sometimes in fever, where the nostrils dilate during expiration. But Seckel carries his analysis much further than this. First he divides the movements of the alæ nasi into respiratory and non-respiratory, the latter including muscular contractions due to emotion. The respiratory movements he then subdivides into arhythmical (seen especially in nasal conditions where there is much obstruction) and rhythmical, which are further classified as follows:

(a) *Pre-inspiratory* or active type. (1) Quiet form, as seen in pulmonary disorders, in the widest sense, such as acute lung diseases and paralysis of the muscles of respiration. (2) Agitated form, as seen in certain cases of obstruction of the respiratory passages.

(b) *Expiratory* or passive type. (1) Agitated form, as seen in crying, coughing, or laughing. (2) Quiet form, as seen in fever or loss of consciousness.

Certain other points in Seckel's paper call for comment. For example, the rapid breathing of fever caused by conditions other than diseases of the air passages or lungs is usually unaccompanied by movement of the alæ nasi—a point which may be useful in differential diagnosis. On the other hand its presence in pneumonia may be noted before there is any clinical evidence of localised disease in the lungs, and it becomes a valuable early sign. It is obvious from observation of a large series of cases that there is an individual predisposition to movement of the alæ nasi, the neuropathic child being liable to present this sign on the slightest upset in the respiratory system. Age also plays a part, for the phenomenon is especially present in infants and Finkelstein speaks of it as "obligatory" in the pneumonia of infants. These facts lead Seckel to consider *the causation of the movements* and he concludes that the pre-inspiratory type and the expiratory type have different origins. The latter he regards as a true reflex movement, brought about in order to aid respiratory efforts. For the pre-inspiratory type he deduces a more complex mechanism, based on the theory that the essential feature is not an anatomical narrowness of the nostrils but a disorder of the nervous coördination of respiration. He connects it with the physiological movement of the nostrils seen in certain amphibians and thinks that its predominance in infancy is atavistic.

COCCIDIOIDAL GRANULOMA.

THE first recognised case of this disease in California was shown to the San Francisco Medico-Chirurgical Society on March 5th, 1894, and a second case appeared about the same time. Both patients were Portuguese natives of the Azores; both had lived in the San Joaquin valley in California; and both died of the disease. A third case was not discovered until the beginning of the present century. The disease was made reportable in California in 1928 and at present nearly 300 cases have been recorded. An official bulletin[1] just issued describes the disease and gives a detailed account of its occurrence in the State with a bibliography of 172 references to medical literature. This infectious granuloma is caused by an organism which when taken directly from the lesions resembles the coccidia responsible for a specific disease of rabbits and of domestic fowl. It was called coccidioides by Stiles who thought it was a protozoon. D. W. Montgomery grew a mould from material supplied from the first case, but thinking his cultures contaminated threw them away. Dr. Ophüls, also of San Francisco, showed that the organism actually is a mould, from material derived from the third case in 1904. He called it *Oidium coccidioides*. As it is not yet settled whether this is the correct class the authors of the bulletin prefer to use the non-committal term of fungus coccidioides. Primary infection is experimentally possible and almost certainly occurs naturally by inoculation through abrasions of the skin. The most frequent portal of entry, however, is probably by inhalation when an infection results that resembles so closely broncho-pneumonia or acute tuberculosis, both in physical signs and on the X ray screen, that only the discovery of the specific organism can make the diagnosis plain. It is believed that many cases are missed and that the present fatality-rate of 65 per cent. is consequently a good deal higher than the true rate. Colour has been lent to this view by a survey of the infection in cattle and sheep. No less than 18·4 per cent. of these animals were found to be infected. Treatment is still in the experimental stage. Success has been reported with intramuscular injections of colloidal copper and with intravenous injections of antimony potassium tartrate. X rays have been found effective in superficial lesions. Spontaneous cure seems to occur at times; it is too soon to say how often. Cases have now been reported from 11 States besides California. Outside of the United States two cases have been reported from Naples and 14 from South America. The question naturally arises as to whether the disease is limited geographically as closely as at first seemed likely. Discovery of the mould in a natural non-pathogenic environment would be an advance. Further surveys of sheep and cattle may bring to light unsuspected reservoirs of infection.

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[1] Catholic Med. Guardian, October, 1931, p. 164.
[2] Zentralbl. f. Gyn., 1930, liv., 461.
[3] Jahrb. f. Kinderhlk., 1931, cxxxiii, 163.

[1] Special bulletin No. 57. California State Department of Health, San Francisco, 1931.

SOCIAL ASPECTS OF JUVENILE DELINQUENCY.

To psychologists nowadays the principles of "Erewhon" are a truism—at any rate when applied to juvenile and adolescent crime. They have yet to convince their brethren of the law, but it seems that they are likely to have more success in the attempt which they are making than lawyers would perhaps receive were they to insist on transferring our patients from our ministrations to those of prison warders. At any rate the Medico-Legal Society listened with attention and interest when Dr. Emanuel Miller addressed them on Nov. 26th, arguing that crime was a kind of extra-version of neurosis. He illuminated the moral issues involved by emphasising the effort of primitive peoples to instil into their young all the essential features of tribal behaviour, so that they might become a vehicle for the preservation of the community. At the moment when youth is most likely to rebel and seek individual paths it is submitted to a process of moulding—the initiation ceremony—designed to annihilate its will with savage vindictiveness. Dr. Miller traced the same idea in the Roman "patria potestas" and the legal enactments that have grown out of it. The patria potestas, he said, remains a psychological reality, and no dual problem of a psychological and sociological nature can be understood unless this fact is realised. Identification with the father allows the young self to absorb the qualities of excellence and power and establish the ideas of an adult life. It renders possible a will to conformity because the internal moral notions answer to the external social world of family demands and later of social obligation. Very early in childhood the fictions of the social order thus become the private fictions of the self, but if the process goes wrong—perhaps through an unsatisfactory parent—there is friction between the social self and the private self. The result, said Dr. Miller, is neurosis, a kind of private solution in which the suffering returns to the self in the form of neurotic or psychotic disabilities. If, however, the ego ideal is not well organised in its relationship to the self, the conflict may be projected upon the outer world and the social organisation come to be regarded as the repressing force which must be overcome. In this way the rebel and the delinquent are made. Dr. Miller did not exclude environmental factors altogether; he admitted that the direction of neurotic symptoms might very well be determined by playmates and older companions. The factor of mental retardation also plays its part by accounting for inferior emotional integration. He declared that a quest for a motive in juvenile crime is futile; the child quite honestly does not know why he does this or that. Only a close history of personality development and environmental influences could reveal to either subject or observer the dominant factors of the situation. An attitude of legalism, he declared, merely introduces hostility and destroys human contact The investigator must have not only sympathy with the case, detachment from its implications, and an understanding of the factors, but also a knowledge of himself, so that he may avoid the common error of identification and the belief that he is understanding the child when actually he is only understanding himself.

RICKETS AND DENTAL CARIES.

ELSEWHERE in our present issue Dr. Helen Mackay describes an attempt to test Mrs. Mellanby's theory that tooth structure and liability to dental caries are closely related. The plan was to examine for caries the teeth of a series of children of school age (6–10 years) who were known to have had rickets, and to compare them with the teeth of children who—as far as could be ascertained—had not had rickets. For this purpose groups of 46 rachitic and 40 non-rachitic children were assembled, the rachitic group consisting almost entirely of children who had been seen and diagnosed by Dr. Mackay herself at the time when they were suffering from rickets. Examination of the teeth showed that while hypoplasia was almost confined to the rachitic group, in which it was comparatively common, dental caries was equally severe in the two groups; the first observation therefore falls perfectly into line with Mrs. Mellanby's view, the second at first sight does not. There are, however, certain points which must be considered, and Dr. Mackay draws only one very limited conclusion—namely, that past rickets, in her series of cases, was not followed by an increased incidence of dental caries. Mrs. Mellanby has pointed out that, though of extreme importance, the bad early history of a tooth is not the only significant factor in its subsequent welfare. Thus if an ill-formed tooth has later a good history of vitamin D supply, it may do well, while a tooth with a good early history and a bad later one may fare ill. In the space of time, about four to eight years, between their having rickets and having their teeth examined, the rickety children may have had no worse dietary history than those who did not have rickets, and for a certain period they must have had a much better one. For if their rickets was diagnosed, presumably it was also treated with some intensive form of antirachitic treatment, possibly over a long period, and in so far as that was so, the rachitic children would certainly have scored dietetically over those who did not have rickets. It is not therefore possible to say from this series of cases that when all other conditions are equal, early rickets does not predispose to dental caries; Dr. Mackay is careful not to draw any erroneous conclusion, and the reader should be equally careful not to make broad assumptions. The latest report of Mrs. Mellanby's own work[1] is one of a large-scale trial of vitamin D therapy on children in institutions. The trial has been going on for two years, and is not yet quite complete, but the available results show quite clearly that the spread of dental caries was but little checked by vitamin D therapy in the case of erupted (deciduous) teeth but was materially checked in the case of non-erupted (permanent) teeth. It must be admitted, however, that though checked the spread of caries was not completely arrested, and one is left wondering whether there is not also a deficiency of calcium in the diet, which is not completely rectified, even when vitamin D is intensively supplied.

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[1] Med. Research Council, Spec. Rep. Ser. No. 159, 1931. Report by the Committee on Dental Disease.

THE HOSPITAL SAVING ASSOCIATION.

In 1925 the late Lord Hambleden prophesied that the Hospital Saving Association, which had been established three years previously, would "in time" reach a membership of a million, and last year the Prince of Wales, the patron, hazarded the guess that this round number would be reached in 1931. These prophecies would no doubt have been completely fulfilled but for the economic situation. At the annual meeting of group representatives last week it was stated that at the end of July there were 930,000 contributors, a net increase during the year of 120,000. Assuming the continuance of the same rate of growth, the hoped-for million should be exceeded substantially by next summer, and if 10,000 new members a month can be enrolled in an exceptionally unfavourable year the prospects for the future are encouraging. The augmentation of numbers sent up the contributory income by £78,000 to £516,000, out of which a total of £388,580 was paid for hospital services. Few organisations for the encouragement of self-help have made such rapid progress, and in view of what has already been accomplished there is no need to suppose that the limit has nearly been reached. Better times would cert[illegible]ed bring back many members who have lapsed [illegible] inability to keep up their contributions. [illegible] pitals, and sources provi[illegible] 11 days hospitals with a big [illegible] largely

little extra trouble and patience required of the surgeon in the presence of some abdominal rigidity is more than repaid by the excellent condition of the patient, and the freedom from respiratory troubles seen after operation when no anæsthetic other than avertin and gas-and-oxygen has been used. F. B. Gurd and Wesley Bourne maintain that the respiratory depression sometimes seen after injection of avertin is avoided if the injection is made slowly enough. At least ten minutes, they say, should spent in instilling the required dose.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE.

H. Hannesson to be Surg. Lt.

Surg. Lt.-Comdr. E. R. Sorley to *President.*

Surg. Lts. W. C. G. Ford (D.) to *Victory*, for R.N. Hospit Portland; H. de B. Kempthorne to *Keppel;* and Jenkinson to *Penzance.*

ROYAL NAVAL VOLUNTEER RESERVE.

Lt. (Emergy.) G. T. C. Hutchison to be Lt.

Proby. Surg. Sub-Lt. G. H. C. R. Critien to be Sur Sub-Lt.

ROYAL ARMY MEDICAL CORPS.

C. J. Dobbin and R. Willan are granted temp. comm in the rank of Lt.

TERRITORIAL ARMY.

Lt. G. C. Vaughan resigns his commn.

TERRITORIAL ARMY RESERVE OF OFFICERS.

Maj. G. V. Davies, from Active List, to be Maj.

INDIAN MEDICAL SERVICE.

The undermentioned Cols. are granted seniority rank: H. M. Mackenzie, S. R. Godkin, C. W. F. Melvill H. R. Nutt, J. Husband, G. C. L. Kerans, L. P. Brasse P. L. O'Neill, W. R. J. Scroggie, E. A. Walker, F. E. Wilso and J. P. Cameron.

Lt. (on prob.) M. Jafar to be Capt. (prov.) (on prob.).

Lt.-Col. A. S. M. Peebles retires.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDE NOV. 21ST, 1931.

Notifications.—The following cases of infectio
disease were notified during the week:—Small-po
55 (last week 68); scarlet fever, 1830; diphtheri
9.92; enteric fever, 31; pneumonia, 1125; puerpera
f[illegible]r, 46; puerperal pyrexia, 100; cerebro-spin
diseas r, 28; acute poliomyelitis, 9; acute poli
beginn halitis, 2; encephalitis lethargica, 11; dysenter
made re phthalmia neonatorum, 100. No case of cholera
nearly 3 or typhus fever was notified during the week
bulletin [1] mber of cases in the Infectious Hospitals of th
detailed a county Council on Nov. 24th–25th was as follows
a bibliograph 120 under treatment, 3 under observation (las
 1 respectively); scarlet fever, 1687; diphtheri
This infectious fever, 10; measles, 207; whooping-cough
which when tak fever, 16 (plus 10 babies); encephaliti
the coccidia res poliomyelitis, 5; "other diseases," 19
 Hospital there were 12 babies (plus
rabbits and of halmia neonatorum.
coccidioides by Stil *aggregate of great towns, includin*
D. W. Montgomery no death from small-pox, 1 (0
supplied from the first 15 (2) from measles, 4 (1) from
contaminated threw from whooping-cough, 24 (3) from
of San Francisco, showed n diarrhœa and *enteritis* unde
is a mould, from mater rom influenza. The figures i
case in 1904. He calle London itself.
As it is not yet settled wh nly *fatal* case of enteric fever
class the authors of the re reported from Manchester
the non-committal term o Oldham, and Carlisle. Liver
Primary infection is experim whooping-cough, Birmingham
almost certainly occurs natur ter 2. Diphtheria claimed
through abrasions of the skin. Liverpool and Dewsbury
portal of entry, however, is prob deaths at Birmingham,
when an infection results that res nd Hull, 3 each at West
broncho-pneumonia or acute tuber *cases of influenza* ar
 hest numbers being i
 each 5.
 during the week
 of 50 per 1000

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[1] Special bulletin No. 57. California State Health, San Francisco, 1931.

SPECIAL ARTICLES

RUSSIA IN RECONSTRUCTION.

By L. Haden Guest, M.C., M.R.C.S. Eng.

III.*—POPULATION AND BIRTH CONTROL.

The birth-rate in Russia is still very high; in 1926 it was about 47 per 1000, but has declined since that date. The death-rate, 30 per 1000, has also declined, and the propaganda of hygienic ways of living and the establishment of a service of rural medicine will undoubtedly reduce it still more. Infant mortality was formerly very high, but it has been greatly reduced in the main urban centres, especially in Moscow and Leningrad.

The 1897 census of Russia (the first taken) showed a population of over 129 millions, which included Finland and the Baltic provinces, since separated from Russia at the 1917 Revolution. In 1926 the population of the area remaining inside the Soviet boundary was estimated at nearly 147 millions, and it is now calculated at about 160 millions. With improving sanitation, limitation of infectious epidemics, and reduction of infantile mortality, it is clear that a continuation of the growth of Russia's population at the same rate would very soon give her an overwhelming numerical superiority over any other European country. But the same factors which check the growth of population in other countries serve the same end in Russia. With increasing industrialisation and improvement in the standard of life as compared with pre-war conditions, the population is already showing a tendency to decline. But the factor of artificial birth control is likely to have a greater effect in Russia than elsewhere, as the propaganda of birth control is actively pursued rather than merely permitted or even tacitly encouraged.

In all hospitals dealing with the treatment of women's diseases or maternity, instruction is given in methods of birth control, and the methods adopted are substantially the same as those in use in Western Europe. The contraceptive appliance used most widely is the Graciella pessary, invented by Dr. Petersen, of Munich. It is not only in the towns of Moscow and Leningrad that this information is available, but in all the towns and at all the centres of rural medicine established during recent years in the agricultural districts. Apart from actual cities the medical services are particularly well organised in the mining areas. In the Donetz basin, for example, birth control information is freely available.

LEGALISED ABORTION

The most interesting feature of birth control methods in Russia is the legalisation of abortion when performed by duly qualified medical men or women. This legalisation has been discussed elsewhere, in Saxony for example, but Russia is the only country to have introduced the practice as a normal method of restricting births. In Russia at the present time any woman who is pregnant and desires to have the pregnancy terminated may have an abortion operation carried out by a doctor.

My information on methods was gained at a large women's hospital, where general gynæcological and maternity cases were dealt with, and where a proportion of beds were reserved for abortion cases. And, so far as I could judge, the question of an operation for abortion was treated precisely as the question of any other operation might be. No special considerations and no special formalities entered into the decision one way or the other. I did not indeed hear of any refusal to operate, but only of inability because of lack of accommodation.

At the hospital I visited about ten abortion operations were performed daily, the operation taking five to ten minutes. I witnessed one operation on a primipara who was under an anæsthetic; the operation, done by a woman doctor, occupied just over five minutes. The method was simple. The drawing down of the cervix to the vaginal entrance, dilatation by Hegars dilators, and scraping with a series of curettes. In cases of multiparæ an anæsthetic is not used as a rule, unless the patient is very nervous. Patients are kept three days in hospital. Cases of abortion are operated upon, on request, up to three months.

I was informed that the results were almost uniformly satisfactory. In a series of 40,000 cases, spread over ten years, there had been only two deaths, and this included 20,000 cases operated on in the homes and brought to hospital because of complications. There was a post-operative rise of temperature in 0·1 per cent. of cases, and there were 10 to 12 cases of perforation a year. I inquired specially as to whether there were any nervous or psychological after-effects, and I was assured, by several members of the staff of the hospital, that there were none observable.

The operation is not performed free of cost, but a charge is made of 25 roubles to include stay in hospital, operation, and all expenses. This sum represents about a week's wages of an ordinary worker, rather more in the case of some unskilled women workers, and much less in the case of the highly skilled. The reason why operations are performed in the home, where they are usually done by a "friend" or by a midwife and are illegal, is partly for economy, the home fee charged being about 5 roubles; and partly because of the difficulty of securing admission to a hospital. I heard of a complaint by a woman who said: "Oh, yes, abortions are legal, only the child is about 12 years old before you can get admission to a clinic." The operations for abortion take place not only in Moscow and Leningrad and the larger cities, but in the mining areas—many operations are performed in the Donetz coalfield—and in the centres of rural medicine established for groups of villages in the agricultural areas.

It may be accepted, therefore, that the practice of legal abortion is widespread and likely to increase in the future. And it will certainly have a big effect on the rate of population increase. One or two doctors with whom I discussed the question said that the birth-rate was already less than before the war, and that it must be expected to show signs shortly of a definite decrease. In the ordinary way this could not be expected to take place among the 80 per cent. of the Russian population who are peasants. But development in Russia is not proceeding in the ordinary way. Over one-half of the peasants of Russia have already thrown in their lot with collectivisation and joined the Collective Farms. And by the end of 1933 the Soviet

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* Parts I. and II. have appeared in preceding issues.

Government anticipates the whole of the peasants will be collectivised. This means the substitution of large scale, machine worked, and scientific agriculture on giant farms, as against the Russian peasant cultivation on farms of an average of 9 acres.

With this rapid change, which is accepted by the peasants, now that agricultural machinery and tractors can be supplied, because it improves their position and standard of life, go other changes. There are changes in housing, in the provision of reading rooms and clubs for adults, creches and play-places for children, the new service of rural medicine, already referred to, the extension of elementary and adult education, and, in fact, a revolutionary reorientation of life. With these changes also there goes a change in the position of women, who have the opportunity for economic equality and who more and more accept it. Under these conditions it is the fact that a larger and larger proportion of women every year avail themselves of birth control in practice by the use of contraceptive appliances, and of abortion in case of need.

THE SITUATION IN MOSCOW.

Figures for the country as a whole I did not obtain, but I was able to secure figures of birth-rate and abortion-rate in Moscow for the years 1909 to 1927, which are quoted in the Problem of Abortion, by A. Guince, published in Moscow. According to this authority the figures are as follows:—

I have constructed a Chart from the figures in Columns 6 and 7, which shows at a glance the total pregnancies and their results over the two series of years.

Births and Abortions at Moscow, 1909–14 and 1921–27.

Year.	Births.	Abortions.	Percentage of abortions to natural births.	Population.	Per 1000 of population. Births.	Per 1000 of population. Abortions.	Percentage of abortions at hospital.
1	2	3	4	5	6	7	8
1909	52,180	1,972	3·8	1,471,785	35·4	1·3	Nil.
1910	53,715	2,459	4·6	1,526,900	35·2	1·6	
1911	54,036	3,486	6·4	1,580,900	34·2	2·2	
1912	54,806	3,743	6·8	1,636,850	33·5	2·3	
1913	54,548	4,926	9·3	1,694,825	32·2	2·9	
1914	54,405	5,537	10·2	1,754,900	31·0	3·2	
1921	36,000	6,723	18·7	1,176,600	30·6	5·7	?
1922	35,328	7,646 (4,367)	21·6	1,137,700	25·6	5·5	43·0
1923	48,780	8,985 (3,809)	19·2	1,620,600	30·1	5·5	57·6
1924	51,914	10,152 (3,809)	19·5	1,772,000	29·3	5·7	62·4
1925	57,537	18,071 (3,810)	31·4	1,855,000	31·0	9·7	80·0
1926	58,384	31,986 (3,893)	54·7	2,019,453	28·9	15·4	87·8
1927	53,369	40,001 (5,851)	75·0	2,083,000	25·6	19·2	85·1

Figures in parentheses in Column 3 indicate illegal abortions outside hospitals of which authorities got information.

In interpreting the figures it is necessary to note that Moscow is now very much over-crowded. Apartment space is measured not in rooms but in square yards of floor space, for not only has an increased population to be housed but accommodation has to be found for all the governmental, trade union, co-operative, and political offices. It is also necessary [illegible]ber that Moscow is one of the chief centres [illegible]ence, and a great medical centre [illegible] be more easily obtained than [illegible] figures are inevitably exceptional, but that the increase of abortion between 1921 and 1927 is typical of a general Russian tendency there is little doubt.

It would therefore appear probable that the extension of birth control information all over the Soviet Union and the spread of the practice of abortion in hospital to the agricultural areas will have the result of decreasing the very high birth-rate, and may make the population stationary in a few years time. In any case it is important for Russia to understand from what section of the population her increase is now coming. From the population statistics available it would appear that the greatest increases of population are in the peasant areas, and the greatest decreases in the towns and among the industrial workers. But in present-day Russia the progress of industrialisation is so rapid, and the increase of the population of the towns so great, that the contrast between town and country populations is becoming less marked. Furthermore, the collectivisation of peasant holdings and the formation of giant collective farms, creates a kind of industrialisation of the countryside so that the factors affecting the future growth of population in Russia are largely incalculable.

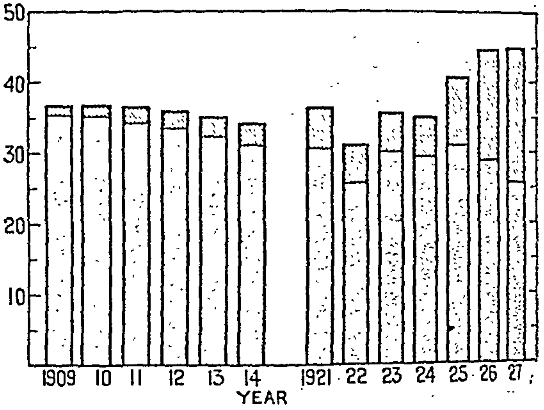

Chart showing proportion of natural births (stippled) and abortions (black) per 1000 of the population of Moscow in the years 1909–14 and 1921–27.

What is certain is that birth control and abortion are spreading all over the Soviet Union, and are bound to result in a decrease of the birth-rate. But it is equally certain that the improvement of hygienic conditions and standard of life of the people is also spreading all over Russia. The net result in the immediate future is therefore likely to be a considerable increase of total population. But beyond that it is not possible to go without further detailed information.

EXTENSION OF HUDDERSFIELD INFIRMARY.—The centenary of this hospital is to be marked by the erection of a new block and, should means permit, by the reconstruction and extension of the existing main building. The scheme, in its entirety, will cost £75,000. The new block will include a fully equipped accident ward, a new out-patients' department, with a dispensary, a waiting hall to hold 300 persons, and a café for those who have to wait for special treatment. There will also be a self-contained unit for ear, nose, and throat cases, two consulting rooms, a dental department, and a unit of 12 cots for tonsils and adenoids operations. New pathological and radiological departments and a massage or orthopædic clinic are also proposed. The proposal for the remodelling of the existing premises includes the conversion of the present out-patient and casualty department into a general ward, and the conversion of a large house into wards for paying patients.

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method which he

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[1] Bruxelles.

GENERAL MEDICAL COUNCIL.

(Continued from p. 1207.)

AFTER the first session of the Council the chair was taken by Sir NORMAN WALKER, the new President. Sir Robert Bolam suggested that there should be incorporated in the official minutes some expression of the gratitude of the Council to the retiring President, Sir Donald MacAlister, and his proposal was received with acclamation. After some discussion of the constitution of the Committee of Business, of which Prof. J. B. Leathes, F.R.S., was elected chairman, the Council turned to the consideration of

Penal Cases.

The first of these were cases adjourned from November, 1930, in which judgment was postponed. After hearing evidence the Council decided that the names of Francis Patrick Kennedy, Ralph Johnston Tait, John Logan Lamond, John Griffith Barrie, and John McGhee should not be erased from the Register. In the case of Mr. Kennedy judgment was postponed for a further twelve months.

A DIVORCE CASE.

The Case of Antony Alexander Martin, registered as of 37, *Kenya-avenue, Hove, Sussex, M.R.C.S. Eng., 1893,* L.R.C.P. Lond., 1893, M.B., 1895, M.D., 1898, U. Lond., who had been summoned to appear before the Council on the following charge:—

"That, being a registered medical practitioner, you abused your position by committing adultery with Grace Ashdown Blows, a married woman, whom and whose husband you had attended professionally, of which adultery you were found guilty by the decree of the Probate, Divorce and Admiralty Division (Divorce) of the High Court of Justice, dated May 7th, 1931, in the case of Blows v. Blows and Martin, in which you were the co-respondent. And that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect."

There was no complainant in this case. Dr. Martin attended in answer to his notice and was accompanied by Mr. J. R. Cort Bathurst, Solicitor.

Mr. Harper, solicitor to the Council, laid the case before the Council. Mr. and Mrs. Blows had been married in 1916 and their first child had been born in 1917. Dr. Martin, as Ministry of Pensions doctor, had attended Mr. Blows between 1920 and 1922 at the Princess Alice Hospital in Eastbourne, and had also attended Mrs. Blows's second confinement in 1922. Mr. Blows had noticed a change in his wife in 1925, and had observed that Dr. Martin was always taking her out in his car. Mrs. Blows went off with Dr. Martin in 1928, and Dr. Martin had written to Mr. Blows in the third person announcing the fact, and inquiring whether legal steps would be taken. Mr. Harper put in a copy of the divorce decree and the shorthand note of the proceedings in the Divorce Court.

Mr. Bathurst then applied for a hearing in camera. He indicated that there was no dispute as to facts, but that his case would be a plea for mitigation of sentence on the ground that Mrs. Blows had had an exceedingly unhappy home. His request was not granted.

Mr. Cecil Blows, examined by Mr. Harper, testified to the facts as set out. He had been respondent's panel patient from 1919 to 1925, and respondent had attended the household. His wife had gone for a holiday with the children and had not returned; witness had not known where she was until he had received respondent's letter. The divorce proceedings had been undefended.

Cross-examined, he agreed that no damages had been awarded by the jury. He could not say the last date on which respondent had attended Mrs. Blows, but maintained that it was later than 1922. Social intercourse had been constant, and witness had not objected. He was not aware that his wife had complained throughout this period of his cruelty to her, or that she had contributed largely to the family exchequer. He had supported her until she left him. Since then he had made no contribution at all to the support of the children and had seen them once.

In reply to the Legal Assessor, he said he had been on respondent's panel up to the time he left, and his wife had had no other medical attendant. He had received a bill from Dr. Martin just after their departure in 1928 for attendance on the wife and children. He had been given custody of the children, but they had remained where they were. There had been no counter charges of cruelty in the Divorce Court.

Mr. Bathurst explained that custody of the children had been given to Mrs. Blows's father.

Dr. Martin, examined by Mr. Bathurst, agreed that he had become doctor to the Blows family in 1922, but said he had ceased attendance early in 1928. The account had been sent out by his partner unbeknown to him. In reply to the Legal Assessor, he agreed that the account was presumably accurate for services rendered in 1928. Further examined, he said that his relations with Mrs. Blows from 1926 to 1928 had been ordinarily social, and the professional attendance had not been very frequent. Mr. Blows had known of the outings with his wife. In July, 1928, his wife and his partner had protested against his association with Mrs. Blows, and he had determined to leave Eastbourne. The charges of cruelty in the divorce case had been withdrawn to ensure that the mother should retain custody of the children, who had, in fact, remained with the mother and himself since 1928. He had spent about £600 on the boys, feeling it his duty to take on that responsibility.

Cross-examined by Mr. Harper, witness said that Mrs. Blows was a clergyman's daughter. He himself was a married man.

In reply to the Legal Assessor, he agreed that Mr. Blows had remained on his panel until he left in 1928, and he had remained Mrs. Blows's medical adviser up to the same time. Neither Mrs. Blows nor the children had had any other medical attendant.

Mr. Bathurst addressed the Council, arguing the antiquity of the phrase "infamous conduct in a professional respect" and maintaining that his client had done nothing disgraceful or dishonourable in this sense.

After Mr. Harper's reply, characterising the case as undefended from the Council's point of view, the Council deliberated in camera. The President announced that the Council had directed the Registrar to erase Dr. Martin's name from the Register.

A QUESTION OF CANVASSING.

The Case of James Lionel Bocarro, registered as of 59, Creek-road, Deptford, S.E.8, L.A.H. Dubl., 1911, F.R.C.S. Irel., 1912, D.P.H. Camb., 1914, who had been summoned to appear before the Council on the following charge:—

1. "*That, being a registered medical practitioner, you have* canvassed with a view to obtaining patients, and in particular: (1) On or about June 10th, 1929, canvassed one Joseph Wade, whose wife and family were patients of Rustom Dossabhoy Kamdin, a registered medical practitioner, whose assistant or locum tenens you had previously been. (2) On or about the same day canvassed Mrs. *Ellen Wade, the wife* of the said Joseph Wade. (3) In or about the month of June, 1929, canvassed one Walter James Dupoy, a patient of the said Rustom Dossabhoy Kamdin. (4) In or about the month of June, 1929, canvassed one Walter George Burgess and his family, who were patients of the said Rustom Dossabhoy *Kamdin.* (5) On or about *Dec. 11th,* 1929, canvassed one William Alfred Fullman.

the erasure of his name from the Register. They thanked the Dental Benefit Council for bringing the case before them.

ALLEGED ADVERTISING.

The Case of Mrs. Nesta Helen Wells, registered as of 153, High-street, C.-on-M., Manchester, M.B., Ch.B., 1916, V.U.Manc., who had been summoned to appear before the Council on the following charge:—

"That, being a registered medical practitioner, you knew and consented to the publication in the *Manchester City News* of June 6th, 1931, of an article in praise of yourself and your professional work, with a portrait of yourself, and thereby sought to obtain patients and to promote your own professional advantage. And that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect."

Mrs. Wells attended in answer to her Notice and was accompanied by Mr. T. Carthew, instructed by Messrs. Le Brasseur and Oakley on behalf of the London and Counties Medical Protection Society.

The complainant was Anthony John Capper Magian, M.B., Ch.B., 1900, Vict. Univ., who was not present. Mr. Harper therefore laid the case before the Council. The article complained of was, he said, the fifth of a series of articles on "Women Workers," and had described respondent's work as a police-surgeon in examining policewomen and cases of indecent assault. It referred to her private practice and her family.

Mrs. Wells, examined by Mr. Carthew, said that she had been appointed police-surgeon in 1927, and was the only woman in Europe to hold that office. She had received a letter from the newspaper asking permission to include an account of her work in their series, and requesting an interview. She had seen a proof before publication and had struck out her address. She had been very busy at the time, as her partner had been away. She was interested in women's work and her intention had been to let it be known that women could work as police-surgeons and at the same time do private work and have a home-life. Her motive had been altruistic, and she had had no intention of increasing her practice. She apologised for her inadvertent offence. In 1927, when she had been appointed, the *Manchester Guardian* had printed an article on the appointment, giving her name and address and reporting an interview in which she had expressed the desirability of having women police-surgeons to examine women and children. She had consulted the British Medical Association at this time and had been told that this article was not objectionable. She had assumed that eulogies in the article were only journalistic padding and not to be taken seriously.

Mr. Carthew read letters from a stipendiary magistrate and a British Medical Association official testifying to Mrs. Wells's character.

After deliberation in camera, the President announced that the Council had found the charges proved to their satisfaction, but in view of Mrs. Wells's apology they had not seen fit to direct the Registrar to erase her name from the Register.

POLICE-COURT CONVICTIONS.

The Case of Alan Gray, registered as of 65, Moston-lane, Blachley, Manchester, M.B., B.S., 1925, U.Durh., who had been summoned to appear before the Council on the following charge:—

"That you were convicted of the following misdemeanours,—viz., (1) On Sept. 13th, 1927, at the Blyth Police-court, of being drunk in charge of a motor-cycle, and were fined £1 and £1 11*s.* costs, and of driving the motor-cycle to the danger of the public, and were fined £1. (2) On June 15th, 1931, at the Middleton Borough Police-court, of attempting to drive a motor-car whilst under the influence of drink, and were bound over for twelve months in the sum of £25 to come up for judgment if called upon and ordered to pay £2 17*s.* costs."

Mr. Gray was accompanied by Mr. A. A. Pereira, instructed by Messrs. Le Brasseur and Oakley for the London and Counties Medical Protection Society. When Mr. Harper had laid the facts of the case before the Council and read the police-sergeant's account of the matter, Mr. Gray gave evidence. He admitted the convictions, expressed his great regret, and gave an assurance of total abstinence in the future. He pointed out that in both cases the offence had occurred after working hours.

Mr. Pereira put in a testimonial as to character, and said that the convictions suggested that the Bench had not taken a very serious view of the offences.

After deliberation, the President announced that judgment would be delayed until the May session, 1932.

The Case of Thomas Robert Sandeman, registered as of The Howff, Kincardine-on-Forth, Fife, M.B., Ch.B., 1910, U. Edin., F.R.C.S. Edin., 1914, who had been summoned to appear before the Council on the following charge:—

"That you were convicted of the following offences—viz., (1) On Dec. 27th, 1928, at the Dunfermline Burgh Police-court, of being drunk in charge of a motor-car, and were fined £2 or 20 days' imprisonment. (2) On August 14th, 1930, at the Perth Sheriff Court, of driving a motor-car negligently while under the influence of intoxicating liquor, and were fined £10 or 60 days' imprisonment. (3) On June 15th, 1931, at the Sheriff Court, Dunfermline, of driving a motor-car recklessly and at a speed dangerous to the public, and of driving the said motor-car while under the influence of drink, and were fined £5 and disqualified from holding or obtaining a licence for two years."

Mr. Sandeman was present. Mr. Harper described the occurrences and pointed out that respondent had pleaded guilty. Serious accidents had only been averted by the skill and promptitude of a police officer on one occasion, and a signalman on another. Respondent had pleaded exhaustion from work and driving himself, and said that he had since employed a chauffeur and had had no desire for alcohol.

Mr. Sandeman went into the witness-box and answered questions from the chair. He admitted the facts and said he intended to abstain from alcohol in future.

After deliberation, the President announced that judgment had been postponed until the November session, 1932.

The Case of Horatio Waller James Steen, registered as of 62, Warwick-square, S.W.1, M.B., Ch.B., 1921, U.Edin., who had been summoned to appear before the Council on the following charge:—

"That you were convicted at the County of London Sessions commencing on June 2nd, 1931, of the following felony—namely, of stealing seven shirts and other articles, value together £21, the property of Hugh Williams, and of the following misdemeanours—namely, of obtaining from John Atkins and R. H. McBirnie, and F. Milne, six suits of pyjamas, six tunic shirts and six dress shirts, and of obtaining from McDougall and Company, Ltd., one Highland evening dress outfit and one sporran and chain—in each case by false pretences with intent to defraud—and were sentenced to four months' imprisonment."

Mr. Steen was not present and was not represented. Mr. Harper said he had no idea whether or not respondent had received the Notice. He had been seen since he left Warwick-square, but his whereabouts were unknown.

Mr. Percival Norman, the detective of the Criminal Investigation Department who had been in charge of the case, testified to the facts. The Council deliberated in camera on the charge before them and then heard Mr. Norman's testimony as to previous complaints for three years against Dr. Steen. As he was a doctor and member of the Westminster City Council the police had not taken action; the complaints had all related to stealing.

After further deliberation the President announced that the Registrar had been directed to erase Dr. Steen's name from the Register.

Penal Cases Reported by the Dental Board.

The Case of Arthur Leonard Heath, registered as of 37, Martin-way, Merton Park, S.W. 20, "Dentist 1921." The Dental Board reported that Mr. Heath had practised in the same double-fronted shop with one W. J. Clisby, who had been prosecuted by the Board on Oct. 20th, 1931, for practising dentistry while not being on the Dentists' Register. The two men had worked together and kept a joint diary. After hearing evidence and studying documents the Board had found that the said Arthur Leonard Heath had by his presence, countenance, advice, assistance, or coöperation, knowingly enabled the said William John Clisby to practise dentistry at 50, Kennington-road, S.E., as if he were registered, and that the name of Mr. Heath ought to be erased from the Register.

Mr. Heath attended, and was accompanied by his solicitor, Mr. Jonas A. T. Good, who complained of the difficulty in being unable to compel witnesses before the Board or the Council; declaring that he had a witness who could prove that his client had not the knowledge alleged. He argued that only one case was cited, and that on that occasion Clisby had acted in Heath's absence; there was, he maintained, no evidence of collusion.

The President pointed out that the case could not be retried.

Mr. Harper, solicitor to the Dental Board, drew attention to the joint diary, and said that Heath had been employed by Clisby for two years.

After deliberation in camera the President announced that the Council had directed the Registrar of the Dental Board to remove Mr. Heath's name from the Register.

The Case of Arthur Percy Hogarth, registered as of 50, Shakespeare-street, Bradford, "Dentist 1921."

The Dental Board, having considered the two charges against the said Arthur Percy Hogarth, reported as follows:—

On Nov. 11th, 1931, the inquiry was held. The said Arthur Percy Hogarth attended before the Board and was duly heard. He was not represented by counsel or solicitor. The following facts were established by the evidence:—

1. (a) Mr. Hogarth, in conjunction with one H. Bramley, had, in September, 1930, by means of a personal visit and handing a business card, and subsequently a bundle of the same, canvassed one Mrs. Frances Stead.

(b) He had, also in conjunction with Bramley, in September, 1930, canvassed by means of a personal visit one Mrs. Gertrude Elsie Kellock.

(c) He had, also in conjunction with Bramley, in October, 1930, canvassed by means of a personal visit and handing her a business card, one Mrs. Emily Linacre.

(d) He had, also in conjunction with Bramley, in October, 1930, canvassed one Mrs. Ada Warden.

2. Mr. Hogarth had also, by his association with Bramley, an unregistered person, enabled the latter, by his dental treatment of the persons aforesaid, to practise as if he were registered.

The Board had therefore found that the name of Mr. Hogarth ought to be erased from the Register.

Mr. Hogarth did not attend, but sent a letter enclosing a testimonial from his present employer. After deliberation in camera the President announced that the Registrar of the Dental Board had been instructed to remove Mr. Hogarth's name from the Register.

The Case of Harry Ernest Best, registered as of 83, Brondesbury-villas, Kilburn, N.W. 6. "Dentist 1921."

The Dental Board, having considered the charge against the said Harry Ernest Best, reported as follows:—

On Nov. 12th, 1931, the inquiry was held. The said Harry Ernest Best attended before the Board and was duly heard. He was not represented by counsel or solicitor. The following facts were established by the evidence:—

Mr. Best had at a date which she could not precisely remember, but some time previous to February, 1930, canvassed one Mrs. Webb at Chippenham-gardens, Kilburn, N.W. Mr. Best had in the month of September, 1931, also canvassed from house to house in Avenue-road, St. John's Wood, in Belsize-grove, Hampstead, and in King Henry's-road, Hampstead.

The Dental Board had therefore found that Mr. Best's name ought to be erased from the Register.

Mr. Best attended and addressed the Council, denying that he had canvassed; he said he had only been selling tooth-powder, which he had sold for 30 years. Mr. Harper read out Mr. Best's defence before the Dental Board.

After deliberation in camera the President announced that the Registrar had been instructed to remove Mr. Best's name from the Register.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

HOLZKNECHT, ECONOMO, FORAMITTI, AND SCHNITZLER.

THE medical profession here has lately lost four men of international reputation.

Prof. Guido Holzknecht, whose death from X ray lesions you reported on Nov. 14th (p. 1085), was one of the first to grasp the medical applications of Rontgen's discovery. He began the study of radiology at Nothnagel's clinic for materia medica, and in 1901 published his first important standard book and atlas—on radiography of the thorax and abdomen. In 1902 he constructed his famous instrument for measuring the dosage of X rays, and his unit, "H" (Holzknecht), was accepted by international agreement in his honour. At that time he was already suffering from the effects of the X rays, for as yet the necessity of careful precautions was not fully realised. Serious burns on some of his fingers developed, and later made amputation necessary. Meanwhile he had organised a large research institute at the Vienna General Hospital, where a veritable "Holzknecht school" soon sprang into existence, with pupils from all parts of the world. Methods of localisation, diagnosis, treatment, and biological research were constantly being devised at this "Central Rontgen Institute." To-day nearly all the principal seats of radiology in Austria and Germany, as well as in many countries overseas, are occupied by former pupils of Holzknecht, who was recognised as the leading authority on X rays in German-speaking countries. He had the gift of finding out talent, and was only too happy to help his collaborators whatever their creed, race, or nationality.

Prof. Constantin Economo, whose death at the age of 58 has come as a surprise to his friends, was a many-sided man whose interests extended over such various fields as aviation and architecture, as well as medicine. His two best-known works were his monograph on encephalitis lethargica (1917), in which he defined the entity—hitherto not recognised—of the seven types of "sleepy sickness" in Europe, and his book on the systematic investigation of the cerebral cortex. This "Atlas of the Cyto-architecture of the Cortex" won him world fame. He also investigated the function of different nuclei and centres in the brain and the medulla, especially the centres of sleep and of mastication. Only quite recently he organised a laboratory for brain research, the first of its kind in the world, and at the time of his death he was just finishing a large work on "Myelo-architecture of the Brain."

Dr. Foramitti was the leading medical man in the Austrian Health Ministry and this country's delegate to the Health Committee of the League of Nations. He was the organiser of Austrian hospital development, and the welfare work for adolescents, which has proved so important in the restoration of the nation, is largely due to his incessant efforts. He also was only 58 years of age.

Lastly, I may mention the name of Dr. Arthur Schnitzler, son of the eminent laryngologist of bygone days. Dr. Schnitzler was far better known, of course, for his literary and poetical works than for his medical achievements. Apart from his early coöperation with his brother-in-law, Prof. Hajek—the present chief of the clinic for rhinolaryngology in Vienna—he took a great interest in psycho-analysis, even long before Freud published his researches. The poet-physician, as Schnitzler may be termed, applied intuitively the elements of analysis in his well-known plays and dramas, some of which won for him the title of representative of Austrian poetry. He gave up medical practice many years ago, and lived only for his literary work.

INFECTION AND DISINFECTION.

The regulations of the Vienna Board of Health, as now amended, require that the following diseases must be notified to the health authorities: scarlet fever, diphtheria, typhoid and paratyphoid fever, dysentery, epidemic meningitis, puerperal fever, typhus, small-pox, Asiatic cholera, recurrent fever, leprosy, trachoma, yellow fever, glanders, anthrax, human rabies and injuries caused by diseased or suspected animals, malaria, varicella, anterior poliomyelitis, encephalitis lethargica, and influenza; furthermore, all outbreaks of measles, whooping-cough, mumps, and rubeola, if occurring in institutes or boarding-schools. Under the Health Act of 1918 notification must also be made of infectious sexual diseases, if transmission is very likely to take place, and also of tuberculosis, if the patients live in close contact with infants—i.e., in the same room or lodging. Anyone connected with a school—teacher or child—who is suffering from one of these diseases must be kept away from work until he can show a certificate of final disinfection. This applies also to kindergartens and infant institutions. Only in cases of malaria, measles, varicella, influenza, whooping-cough, rubeola, and infectious sexual diseases is a certificate of disinfection unnecessary; in these cases a certificate, signed by the attending medical man, that the patient is cured, will be deemed sufficient to readmit the former patient to school. Acute syphilitic manifestations, scabies, favus, trichophytic and microsporic affections and similar transmissible skin conditions are also deemed reasons for excluding the patient from school and similar institutions.

To be considered "final," disinfection must be done by officers of the municipal disinfection department. As a rule, no fee is asked for this, but where repeated disinfection is asked for, the department may make certain charges. Disinfection is mainly effected, either by steam or by formaldehyde vapours, in the public disinfecting institute, but non-transportable objects are treated on the spot with chemical disinfectants. After small-pox, plague, typhus, yellow fever, and malaria, special disinfecting methods are provided, according to the nature of the disease and its transmissibility. The staff of the department consists of 25 trained men, working under the control of three sanitary inspectors, in three institutions. Each of these institutions has two steam disinfection plants, one chamber for formaldehyde gas, and one for sulphuric gas, besides a large stove for destroying articles unfit for disinfection. One institution has a 24-hours' service for emergencies—for example, in railway stations, police stations, and quarantine stations. The number of final disinfections rose steadily from 5570 in 1920 to 21,031 in 1930.

Comparison of the prophylactic and disinfecting measures at Vienna with those used in the greater cities of Germany shows that here they are much more intensive and exacting. This is because Vienna is situated where the central European east-to-west traffic crosses the south-north road, at a point situated well to the east, and therefore more exposed to the importation of disease. The value of the methods used in Vienna is shown by the fact that the average yearly mortality from acute transmissible diseases dropped from 296 in 1871–1900 to 31 in 1921–30.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

A MENTAL HOSPITAL APPOINTMENT.

A DISPUTE has been going on for some months between the Minister for Local Government and Public Health, on the one hand, and the committee of the Cork Mental Hospital on the other, concerning the appointment of a medical superintendent for that institution. The office having become vacant in November, 1930, the committee wished to promote their senior assistant medical officer, who had long and excellent service in the mental hospital. The Minister for Local Government and Public Health refused to permit the committee to fill the vacancy by promotion, and in April last referred the choice of a medical superintendent to the Appointments Commission. In due time this commission recommended another candidate for appointment. The committee of the Mental Hospital refused to accept the recommendation, and a long drawn-out correspondence with the Minister followed. The Minister proved obdurate, and on Oct. 20th, after considering a letter from the Minister insisting on the appointment of the candidate recommended by the Appointments Commission, the committee of the Mental Hospital adjourned consideration of the whole question, and decided to take legal advice as to their powers in the matter. The next step was an application in the High Court, on behalf of the Minister, for a conditional order of *mandamus* to compel the committee of the Cork Mental Hospital to appoint as medical superintendent the person who had been recommended to them pursuant to Section 6 of the Local Authorities (Officers and Authorities) Act, 1926. The application for a conditional order was granted.

THE CLEAN MILK QUESTION.

The President and Fellows of the Royal College of Physicians of Ireland, at their last meeting, passed a resolution expressing satisfaction at the announcement of the Government respecting speedy legislation to deal with the provision of clean milk. The opinion was also expressed that the President and Fellows were satisfied that there was no form of adulterated food, common at the present day, which was at all so dangerous as was milk infected with tubercle bacilli, yet there was reason to believe that such milk was not uncommonly sold to the public.

CORRESPONDENCE

WINTERING IN ENGLAND.

To the Editor of THE LANCET.

SIR,—Many persons who have been accustomed to go abroad for reasons of health are at the present time, from obvious causes, unable or unwilling to do so. The limitation of choice has, however, its compensations, for the British Islands are endowed with a large number of natural winter resorts. Their wide extent, variety, and great medical value, particularly on the south and west coasts, are, we think, too little recognised.

More precise and authoritative information on the character and value of the home resorts in the winter months seems therefore desirable, and a medical statement on the Winter Health Resorts of the British Islands is accordingly being prepared.

We cordially invite all members of the medical profession who are interested in this matter to a meeting at the Institute of Hygiene, 28, Portland-place, on Wednesday, Dec. 9th, at 5 P.M., to receive and consider this statement with a view to publication.

We are, Sir, yours faithfully,

E. FARQUHAR BUZZARD,
THOS. WATTS EDEN,
R. H. ELLIOT,
R. FORTESCUE FOX,
THOMAS HORDER,
ROBERT HUTCHISON,
E. P. POULTON,
HUMPHRY ROLLESTON,
STCLAIR THOMSON,
WILLIAM H. WILLCOX,
W. G. WILLOUGHBY,
R. A. YOUNG.

36, Devonshire-place, W.1., Dec. 1st, 1931.

PYELITIS IN THE NEW-BORN.

To the Editor of THE LANCET.

SIR,—Dr. Donald Paterson's valuable note in your last issue (p. 1186) on pyelitis in new-born infants serves to emphasise the importance of a satisfactory examination of the urine in every sick infant. It is still not widely realised that urinary infection in babies may cause symptoms of a nature unexpected by those who have not been called upon to deal with many of these cases.

Although neonatal pyelitis is not a common complaint it is seen from time to time in any large maternity hospital, and my own experience convinces me that Dr. Paterson is right in saying that it occurs more often than is generally supposed. I think, also, that it is at least as common in boys as in girls; in both sexes the possibility of the infection must be remembered if the proper diagnosis is to be made, and curative treatment begun. During the past month I have dealt with two examples in the Liverpool Maternity Hospital, and they illustrate the clinical picture which is, in my experience, the common one. Both were male infants, and both developed convulsions of unknown nature and without fever, one on the fifth day of life, and the other on the eighth day. Intracranial birth injury was suspected in the first example because the child was large (9 lb. 3 oz.), the mother was a primigravida, and the delivery was instrumental. The other baby was born by Cæsarean section to a tuberculous mother.

The urine is obtained with ease from baby boys by strapping a test-tube to the penis, but the nurse must first cleanse the glans penis and prepuce, and she must examine the tube frequently in order that the reaction of the urine may be noted as soon as possible after the specimen is passed. It is found to be acid, and microscopical examination shows pus cells and organisms, generally colon bacilli.

Considerable doses of sodium citrate may be necessary to control the infection; both the above cases responded rapidly to a dosage of grs. 60 in 24 hours. The convulsions usually cease as soon as the urine becomes alkaline, but the treatment should be continued in doses sufficient to maintain alkalinity of the urine for 10 to 14 days after apparent recovery.

I am, Sir, yours faithfully,

NORMAN B. CAPON, M.D., F.R.C.P.

Liverpool, Nov. 30th, 1931.

ANTIMENINGOCOCCUS SERUM.

To the Editor of THE LANCET.

SIR,—The chief lesson learnt from the specific treatment of cerebro-spinal fever among troops during the war—namely, the excellent results to be obtained by treating Type I. cases with the homologous antiserum—has been confirmed in a striking manner by the results reported from the Aldershot Command (see THE LANCET, Nov. 28th, p. 1199), which reflect the highest credit on the officers concerned and on the serum department of the Lister Institute.

On the other hand, the fact that the so-called polyvalent antimeningococcus sera prepared in this country and available at the early stages of the outbreak, contained no demonstrable antibody to Type I., and failed therapeutically, is equally striking. For Type I. meningococcus is the chief epidemic strain of that micro-organism. During the rising curve of the epidemic among recruits in training during the early months of 1915, when as many as 120 cases were notified a week, this was the strain operating, and then also the available antimeningococcus sera were deficient in antibody and in therapeutic value, with the result that the mortality was 50 per cent. At that time I obtained strains of meningococcus from the Pasteur Institute, and found that our Type I. strain was identical with the meningococcus of Dopter, Type II. being an example of his parameningococcus. The very large number of observations made in the study of cerebro-spinal fever outbreaks among troops during the war showed that some 80 per cent. of the strains operating could be included in Types I. and II., and the remainder in Types III. and IV. Clinically, Type I. cases were the most severe, yet when the homologous antiserum was applied their recovery-rate was 90 per cent.

In these circumstances it is pathetic to see that during the past two years cerebro-spinal fever outbreaks have been occurring in America and this country in which the dominant types operating have been I.–III., and that the mortality has been severe in this the most easily treated variety of cerebro-spinal fever for want of specific serum.

The chief difficulty, of course, is that the type of meningococcus operating in a given outbreak does not remain constant, other types appearing as time goes on. This is what happened in the outbreaks among troops during the war, and since then we have been passing through an inter-epidemic period, the cases being chiefly among children and due to aberrant strains of Type II. Over all this time, however, the original strain of Type I., Littledale, has been kept up in the National Collection of Type cause for uterine inertia that "her bones are a little too small," but she will be indignant if the cessation of her "pains" is attributed to her lack of courage, loss of confidence, and fear of pain. A patient with dysmenorrhœa will agree to an explanation of a kinked cervix, but she will rebel if the "masculine protest" is served up as the true cause.

I agree that the general practitioner is in the best position to assess the domestic factors in gynæcological complaints. He has seen the patient perhaps in parturition and lactation, and knows how she generally reacts to problems in general. And she will be more willing to discuss with him her marital and social problems. But all these opportunities without knowledge of their application are useless. Here is a fresh field for the general practitioner, whose constant complaint is that his field of work is rapidly contracting. As Dr. Edwards writes, the general practitioner would find a course in psychotherapeutic technique most valuable.

I am, Sir, yours faithfully,
FRANK BODMAN.
Bristol, Nov. 29th, 1931.

CÆSAREAN SECTION.

To the Editor of THE LANCET.

SIR,—I am indebted to your reviewer in the issue of Nov. 14th (p. 1084) for calling my attention to an error which had escaped notice in my little book on Cæsarean section. The words "utero-vesical pouch" should be substituted for "cave of Retzius" on pages 67 and 69.

May I also be allowed to point out that in the technique for suspect cases the uterus is opened as low as possible in the upper segment, and great care is taken to prevent contamination of the peritoneal cavity with infected liquor amnii. Uterine massage is employed, along with pituitrin and ergotin, to ensure the good retraction specially necessary in potentially septic cases. At the operation normal saline solution is administered with, or at the same time as, antistreptococcal serum, to avert anaphylaxis, and the Fowler position is adopted as soon as the condition of the patient allows it.

In the after-treatment enemata are employed early, as well as purgatives, to assist elimination, while pituitrin helps to promote good uterine retraction. At the same time I believe that peritoneal drainage and the early use of serum were extremely important factors in the successful results obtained in my series of cases. The careful nursing they received enabled complications to be dealt with early.

I am, Sir, yours faithfully,
FRANCES IVENS-KNOWLES.
Wimpole-street, W., Nov. 28th, 1931.

RESEARCH IN ASTHMA.

THE URINARY PROTEOSE.

To the Editor of THE LANCET.

SIR,—Dr. Freeman's remarks on the "proteose," isolated from the urine by Dr. Oriel in certain morbid conditions, reveal a misapprehension as to its significance and incidentally to that of what he terms the dermal reaction. I will deal with the latter first.

To begin with, it is essential to distinguish between *epidermal* and *dermal* sensitisation. The urticarial wheal is the commonest response when dermal hypersensitiveness exists. It is due, as the researches of Lewis and his colleagues have shown, to the liberation of histamine or some allied substance by the skin in response to injuries of various kinds. In a case of urticaria of internal origin, whether a known primary antigen—e.g., fish or egg—is responsible (and this is relatively uncommon) or not, the liberation of histamine is presumably due to the damage resulting from the reaction of the antigenic substance with specific fixed antibodies in the *dermal* tissues. In a person who develops urticaria on the ingestion of a certain food, the application of it to the skin by the scratch or intradermal method will naturally cause a local urticarial reaction.

When epidermal hypersensitiveness, on the other hand, is present, the reaction in the skin is an *eczematous* one, and it is now held that this depends upon sensitiveness of cells in the rete Malpighii. This type of cutaneous reaction is entirely distinct from the "triple response" that produces the urticarial wheal. It is apparently independent of histamine-production, for even in eczematous persons I have never succeeded in provoking an eczematous reaction by bandaging histamine on the skin. To histamine the response is always urticarial.

Although an eruption consisting of mixed urticarial and eczematous elements may occur, for example in serum sickness and fish-poisoning, thus indicating simultaneous dermal and epidermal sensitisation, it is exceptional; but an eczematous response to one antigen and an urticarial reaction to another in the same person is not very uncommon. It is owing to this difference in cutaneous reaction according to the part of the skin in which the hypersensitiveness is localised that dermatologists now use in investigating cases of eczema the contact or "patch" test, first indicated by Jadassohn, which consists in the application for 24 hours to the *uninjured* surface of the skin of suspected substances. As Sulzberger and Wise, MacKee, and others have recently pointed out, positive results—i.e., an acute eczematous reaction at the site of application—are often obtained by this method after the scratch and intradermal tests have proved negative.

Two other points of great importance, which have been established by the patch test, are: (1) that phases of extreme hypersensitiveness, lesser hypersensitiveness, and non-sensitiveness occur, so that a person may give a strongly positive reaction at one time and a negative one at another—the non-sensitive phase is particularly likely to occur after an acute exacerbation of the patient's symptom; and (2) that one area of skin may be hypersensitive to a given irritant and another non-sensitive, for example the skin of the eyelids may be sensitised and that of the forearm or other parts not so.

It will be clear from what has been said that to depend, as Dr. Freeman appears to do, upon dermal reactions, provoked, I presume, by the scratch or intradermal tests, as evidence of hypersensitiveness or allergy towards a given substance is to misconstrue their significance. They indicate dermal sensitisation and no more. As has been seen, they may be negative even when another part of the skin, the epidermis, is sensitised. To expect them necessarily to be positive when other structures, such as the bronchial, intestinal, and uterine musculature, or the mucous membranes of the respiratory and alimentary tracts are sensitised is, to say the least of it, unreasonable.

To come now to the "proteose," the proofs that in certain acute and chronic allergic states it contains what may be justly termed a specific substance may be considered under two headings—experimental and clinical.

(1) *Experimental.*—Dr. Freeman does not refer to the careful and laborious experiments carried out by

Dr. Oriel upon the guinea-pig uterus according to the Dale technique. Some of them have been published,[1] and I need only refer to two. If a guinea-pig be sensitised to milk, a typical contraction will be obtained by applying a solution of proteose, prepared from a milk-sensitive person after he has taken milk, and also, of course, with milk itself; the proteose from a non-milk sensitive person will give a negative result. Conversely if a guinea-pig be sensitised by injections of the proteose from the milk-sensitive person, a uterine contraction will be obtained not only with the proteose, but also with milk. Dale's method of testing for specific tissue-sensitisation is, of course, accepted as being the most reliable, providing the correct technique is employed, and these experiments, which have been repeated again and again, seem to me conclusive.

With regard to cuti-reactions, I can assure Dr. Freeman that positive dermal reactions from the scratch and intradermal tests can often be obtained with autogenous urinary proteose, the degree of reaction depending upon the concentration of the solution. Of much greater interest to me, however, is the fact that in certain cases of eczema of internal origin I have obtained a strongly positive *eczematous* reaction by applying a solution of the patient's own proteose to an area of undamaged skin for 24 hours (patch test), whereas proteoses from other patients gave negative reactions. In one patient the experiment was repeated three times upon different areas of skin with success. This seems to me sufficient proof that in these cases the patient's own proteose contained the substance to which the epidermis was sensitised.

(2) *Clinical.*—For a long time past I have employed injections of autogenous urinary "proteose" with a view to desensitising patients suffering from such conditions as chronic urticaria, angioneurotic œdema, eczema of internal origin, certain forms of prurigo, dermatitis herpetiformis, psoriasis arthropathica, and, more recently, uncomplicated psoriasis. In many of these patients other allergic symptoms such as migraine, paroxysmal rhinitis, gastro-intestinal disturbance, and asthma, were present. As a result of very careful observations on a large number of cases, my conclusion is that it is not only specific, but incredibly and inconveniently so. My difficulty in many cases is to find a dose small enough to cause progressive improvement, and to avoid acute exacerbations of the patient's symptoms or progressive deterioration in his condition. At first I worked with dilutions of one in one million and one in a hundred thousand, and gave increasing doses often with very unpleasant results. I now employ minute doses—e.g., 0·025 to 0·1 c.cm. of a dilution of one in ten million and in some cases, for example of the prurigo of Besnier with asthma—the most sensitive group of all, of a one in a hundred million dilution, and, having found the dose on which the patient improves progressively, I do not increase, but rather decrease the dose. The amount of proteose present in 0·05 c.cm. of the latter dilution must be infinitesimal, but I have patients who cannot tolerate more without reaction. This would seem incredible, but I can vouch for its truth, and that it is not the result of suggestion is shown by the fact that most of my hypersensitive patients have previously received injections of non-specific desensitisers such as peptone, entero-vaccine, whole blood, aolan, &c., without any comparable reactions. An interesting point is that with proteose the usual time for a reaction to occur is on the third day after the injection, but this is not constant.

Surely a substance, which is capable of constantly producing acute exacerbations of a given patient's symptoms in a dose of, say, 0·1 c.cm. of a one in one million dilution, must be considered specific. The observations that Dr. Oriel and I have made on the clinical use of proteose have been amply and independently confirmed by others.

I cannot here discuss the actual nature and significance of the active substance which is contained in urinary proteose excreted in certain morbid states, but I see no reason to alter the opinion expressed in the original paper by Dr. Oriel and myself[2]—namely, that it is a secondary antigen resulting from the action of one or more primary antigens on the person's own tissues (probably in most instances the hepatic cells). If this is so, it would correspond to the secondary antigen, denaturisation product, or anaphylotoxin of Manwaring.[3]

I am, Sir, yours faithfully,
H. W. BARBER.

Devonshire-place, W., Nov. 30th, 1931.

To the Editor of THE LANCET.

SIR,—In reply to Dr. John Freeman, I should like to draw attention to the following points.

(1) In the isolation of a new substance, it is an invariable experience that the original technique used for isolation has to be modified in the light of subsequent experience. The criterion of potency of "proteose" does not depend on its quantity, but on its power of reaction with antibodies; whereas a normal person excretes a certain quantity of "proteose," he never, as far as I am aware, gives a positive skin test to this substance, neither does its injection cause symptoms. (2) Dr. Barber will, I believe, explain to Dr. Freeman the technique which should be employed to elicit a specific reaction in the eczema-asthma syndrome. (3) The case Dr. Freeman quotes as giving a negative reaction to "proteose" by his technique, was used for the experiments in urinary antigens reported to the Royal Society of Medicine (Proc. Roy. Soc. Med., July, 1931, Sect. Dermatol., p. 55). In Fig. 1 the experiment with "proteose," labelled "Proteose, Dr. F.'s case," is the identical case which Dr. Freeman quotes as giving a negative skin reaction. Guinea-pig experiments were used in this connexion, as they are recognised to be more specific than skin tests. (4) In some work in process of publication, Dr. Conybeare, working at the Asthma Clinic, Guy's Hospital, undertook an independent investigation, using a "proteose" isolated from a patient suffering from hay-fever asthma, and tried the effect of intradermal tests with this patient's "proteose" on (*a*) pollen-sensitive subjects, (*b*) asthmatic subjects who were not pollen-sensitive, (*c*) normal controls. In this series of approximately 100 cases it was found that 80 per cent. of the pollen-sensitive patients gave positive skin tests to the hay-fever "proteose," whereas none of the normal controls did so. Some 20 per cent. of the asthmatic patients who were not pollen-sensitive gave positive tests. It is interesting that some of these patients were clinically hay-fever subjects, although they gave negative skin tests to pollen. Tracings of all these skin tests were kept, and will be available for inspection by anyone

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[1] Proc. Roy. Soc. Med., July, 1931, p. 53.

[2] THE LANCET, 1930, ii., 231.

[3] Jour. Immunol., 1927, xiii., 63.

OBITUARY

SIR DAVID BRUCE, K.C.B., M.D. Edin., F.R.S.,

MAJOR-GENERAL, A.M.S. (RET.).

We regret to announce the death on Friday, Nov. 27th, at Artillery Mansions, Westminster, of Sir David Bruce, whose contributions to the world's knowledge of tropical disease have been of outstanding importance. He died while the funeral service of his devoted and gifted wife, who predeceased him by four days, was being conducted in Christchurch, Victoria, adjacent to their home.

SIR DAVID BRUCE

David Bruce was born at Melbourne in 1855, and, being brought to Scotland as a child, received his general education at the Stirling High School and his medical training in the University of Edinburgh. He left school early, and in the interval is said to have thought of becoming a professional footballer. He graduated at Edinburgh as M.B., C.M. in 1881, and in 1883, after a short spell of private practice, entered the R.A.M.C. As a medical student he was marked for his ability, perseverance, and fine physique. He formed one of a small group who devoted their spare time to the pursuit of field natural history, and their best known achievement was the finding of the snow-bunting on the Grampians. Among his companions in this group were two men destined, like himself, to become scientific leaders, William Herdman, the professor of natural history at Liverpool, and Noel Paton, the professor of physiology at Glasgow. It is on record that Bruce and Herdman made an expedition in search of a peregrine falcon's nest in the Ochils, and were guided to a nest on the face of a cliff with an overhang, so that the intending depredator had to be lowered by a rope until he was opposite to its site, when he must inswing to the nest. The guide begged that the "wee yun" (Herdman) should be chosen for the feat, but Bruce insisted it must be his job, and, despite attacks from the indignant mother bird, he obtained two nestlings, but was himself brought back to the top with difficulty.

Bruce passed out of Netley at the head of the list, having married, before leaving home for his first appointment in Malta, Mary Elizabeth Steele, the daughter of a doctor at Reigate, and the couple got quarters in the Valetta Hospital. From the beginning of his career he showed intense interest in pathology, and his wife, who was a few years his senior, shared his enthusiastic desire to turn that interest into practical research. They had little money, and in those days no facilities for research were *provided, but a microscope and the* necessary appurtenances were obtained at their own cost, and in 1886, only three years after Bruce joined the service, he was able to announce the identification of a certain germ in Malta fever, or, as it is now termed, Mediterranean fever, although the new name does not express its confines. The cause of this painful and lingering disease, with its associated symptoms of fever, anæmia, and the affection of the joints, was then unknown, though its occurrence had been recognised in Gibralta and other places on the Mediterranean coast, especially Malta, for many years. In 1859, for example, Jeffrey Marston gave an accurate clinical account of the disease but could supply no suggestion as to ætiology that would account for the facts. The researches of Bruce and his colleagues resulted in the isolation of a special micro-organism, and the spread of this was traced to the milk of Maltese goats. In 1889 Bruce published his first full account of the clinical symptoms; and it may be interpolated here, that a commission, appointed by the Admiralty, the War Office, and the civil Government of Malta in 1904, investigated the whole question on the spot, confirmed the earlier work, and organised prophylactic treatment.

During Bruce's station at Malta cholera broke out on the island, the first suspicious cases occurring during 1887. The spread of the disease was rapid and the mortality high, and Bruce, already a marked man, was detailed by the Maltese Government to investigate the epidemic. The result was an official report issued by the chief medical officer to the Government of the island warning the Government of the futility of the quarantine measures relied on, and of the necessity of better sanitation.

In 1889 Bruce was elected F.R.S. and became assistant professor of pathology at Netley, a post which he held until 1894, when he was appointed to serve in South Africa. Shortly afterwards he was instructed to proceed to Zululand at the request of Sir Walter Hely-Hutchinson, the Governor of Natal, to investigate an outbreak of nagana, the trypanosomiasis of cattle. Bruce's record of the circumstances of the discovery will be found in his Croonian lectures delivered before the Royal College of Physicians of London. Bruce and his valiant wife travelled by mule and ox-wagon for a month until they reached Ubombo, where a wattle and daub hut was provided for them as living rooms and laboratory. Bruce was fresh from five years of bacteriological work at Netley; both researchers were energetic and irrepressible, and the discovery followed of a curiously shaped object differing from anything previously found in blood, which could be seen sometimes lying among the blood corpuscles. Experiment proved that these hæmatozoa had a causal connexion with nagana, and further research made it clear that nagana and tse-tse fly disease were identical and due to a trypanosome. Bruce's account of this research is set out in the Croonian lectures,[1] in what constitutes a history of trypanosomiasis in man and domestic animals in Central Africa. The lectures dealt admittedly with but a small part of a subject which even at that date was growing to huge proportions, but they advanced the whole cause of medical research by the demonstration that order could be introduced early into knowledge that had been accumulating more or less in accidental profusion in many directions, and which was being presented to the medical world in a chaotic manner.

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[1] THE LANCET, June 26th, and July 3rd, 10th, and 17th, 1915.

Further work in South Africa included some studies on horse sickness, but at this point came the outbreak of the South African War, in the course of which Bruce greatly distinguished himself during the siege of Ladysmith. His services were recognised by special promotion as lieut.-colonel, while later he was appointed a member of the commission instituted to investigate the circumstances of the outbreak of dysentery and enteric fever in the camps, and a member of the Army Medical Service Advisory Board. On the issue of the report of this commission Bruce was promoted brevet colonel.

Next followed the famous research into sleeping sickness. In 1902 the Royal Society had sent a commission to Uganda to inquire into sleeping sickness, and the observations of Sir Aldo Castellani and his colleagues were seen to be of high significance. In the following year Bruce was sent out by the Society, accompanied by his wife as his assistant, and Dr. David Nabarro. They confirmed and amplified the results of the previous workers, and the association between tse-tse flies, trypanosomes, and sleeping sickness was established, the haunts of the flies were discovered, and the policy of evacuation for the natives was found successful. Bruce received the Royal Medal of the Royal Society, and in 1905 was appointed C.B. Further investigations into trypanosomiasis in Uganda between 1908 and 1910, and in Nyasaland in 1913 and 1914 followed, Bruce being made director of a commission of inquiry under the Colonial Office. The latter investigation had the broad object of ascertaining the connexion between the diseases of wild animals (game), of domestic animals, and of the human subjects, and its findings threw great light on comparative pathology.

Bruce remained in South Africa till shortly before the outbreak of the Great War, and with this came his appointment as commandant at the Royal Army College. During the war and in the subsequent years he rendered great service in collecting and collating medical statistics of the great catastrophe. He was chairman of the War Office committees for the study of tetanus and trench fever, and more than anyone he proved the use of prophylactic injections of antitetanic serum as a means of preventing tetanus in war wounds. That Bruce was well aided, encouraged, and often guided by his wife, Lady Bruce, he was always the first to acknowledge. Rarely has a pioneer in medicine had the company of such a helpmate.

Sir David Bruce, who had received the K.C.B. in 1918, retired in 1923, but for two further years was Colonel Commandant of the R.A.M.C. Elected to the governing body of the Lister Institute as representative of the Royal Society, he acted as chairman of the body from 1916 until his death. His multifarious academic distinctions were awarded from numerous universities, British and foreign, and he was the recipient of many medals of honour. His commanding figure, his somewhat brusque and incisive manner, and his brilliant record will long be remembered by the officers of the R.A.M.C. as one of their greatest glories.

SIR EUSTACE HILL, O.B.E., M.B., B.Sc. Edin., D.Hy. Durh., F.I.C.

Sir Eustace Hill, who died at his home in Parkstone, Dorset, on Nov. 25th, aged 66 years, had retired to the south coast a few months ago from the position of county health officer for Durham. Born at Winston Green, near Birmingham, Thomas Eustace Hill was son of Dr. Alfred Hill, medical officer of health and public analyst to the city of Birmingham, and younger brother of Prof. A. Bostock Hill, who became county health officer for Warwick. He was educated at King Edward's High School and Queen's College, Birmingham, going on to Edinburgh for his medical studies, where he graduated with honours in 1887, and took a science degree in public health a year later. He had no hesitation about a public health career, and after short periods as deputy medical officer of health for Birmingham, and medical officer for South Shields, he was appointed to the county of Durham, and was elected later to the chair of public health at the university. He became a member of the Departmental Midwives Committee and of the Consultative Council of Medical and Allied Services to the Ministry of Health, and during the war he served in the R.A.M.C., with the rank of lieut.-colonel. In 1922, as did his father and brother before him, he presided over the Society of M.O.H.'s.

It would be no easy task to assess Eustace Hill's services to public health on Tyneside. During his long period of office a good deal of overcrowding was abolished, and the high local infant mortality-rate declined. For much of this it is fair to give Hill credit, for he spared neither time nor trouble in convincing his local authority that public health was good policy, and that public money was wisely spent when it gave a good return in improved health. He took the view that the money spent on sanatoria would have been better devoted to improving the housing of the people, and he was convinced that infant mortality was largely due to environmental causes. He was fully alive, too, to the interdependence of the curative and preventive sides of medicine, and tried with some success to get into touch and to remain in touch with the practitioners of his area. But he was chary of going too fast, and he would rather have seen the surplus population emigrate to wider spaces overseas than have taken steps to limit the birth-rate. His services were recognised last year in the Birthday Honours list.

ALEX. WATHEN NUTHALL, F.R.C.S.

We regret to announce the death of Mr. A. W. Nuthall, surgeon to Queen's Hospital and consulting surgeon to the Children's Hospital, Birmingham. Visiting the former, apparently in his usual health, on Nov. 20th, he had a seizure, and died there within a few hours. Mr. Nuthall studied at Queen's and Mason Colleges, Birmingham, where he was Ingleby scholar, and qualified in 1895, taking his F.R.C.S. three years later after special study at St. Bartholomew's Hospital. He served as civil surgeon in the South African War, and on his return was appointed to the surgical side of Queen's Hospital. In 1904 he joined the staff of the Children's Hospital, with which he was associated as surgeon for a period of 25 years, and as a member of the governing body being responsible largely for its present development. Holding a commission in the Royal Warwickshire Regiment, he joined up as a combatant officer in 1914, was transferred later to the R.A.M.C., and spent nearly three years at Salonica. His writings were few and to the point. He was particularly interested in pneumococcal infections, choosing this for the subject of his Ingleby lectures in 1926. Mr. Nuthall, who was 58 years of age, is survived by three children, his wife having predeceased him.

Dr. JOHN THOMAS COLLIER, who died at Hove on Nov. 17th, in his 77th year, was formerly a valued citizen of Lincoln, where he practised for many years. After an exceptionally successful career at Queen's University, Belfast, where he graduated as M.D. in 1878, he went to Lincoln in 1880 as partner to Dr. Thomas Sympson, the firm being later joined by Dr. Mansel Sympson. In addition to professional work which gave scope for his qualities of charm and friendship, he was long a city magistrate and served on the city council, where he was always interested in improvement of housing and sanitary conditions. His sister, Dr. Georgina Collier, married Dr. Joseph Harvey, of Merton Park, and the family included two medical brothers, Dr. S. R. Collier, of Wimbledon, and the late Dr. R. J. Collier, who died in 1920.

Dr. F. W. COLLINGWOOD, who died in London on Nov. 23rd, in his 69th year, was a forceful critic of medical standards and practice. Born in London in 1862 and educated at the London Hospital, from which he qualified as M.R.C.S. Eng. in 1886, he took a resident appointment at the Torbay Hospital and had some surgical experience at the Great Western Railway Works, Swindon, before entering the Royal Naval Medical Service. Still in early life he retired from the Navy, and after taking part in Prof. Sola's expedition to the South Seas he became a general practitioner in South-east London, specialising on the medico-legal aspects of medicine. Amongst other appointments he held that of anæsthetist to the Samaritan Hospital for Women and National Dental Hospital, and medical officer to the Lewisham Military Hospital. He was a member of Lincoln's Inn and a Liveryman of the City of London.

MEDICAL NEWS

University of London.

At recent examinations the following candidates were successful:—

D.P.M.

With Special Knowledge of Psychiatry.—Glurdham, Arthur; Harrowes, W. McC.; and Weber, H. M.

Pharmaceutical Society of Great Britain.

At a meeting of this society at 17, Bloomsbury-square, London, W.C., at 8.30 P.M. on Tuesday, Dec. 8th, Mr. M. D. Perrins, of the Home Office, will give an address on the International Illicit Traffic in Drugs.

Week-end Course on Disorders of Childhood.

A post-graduate course on Common Disorders of Childhood and their Treatment will be given at the Hospital for Sick Children, Great Ormond-street, London, W.C., on Saturday, Dec. 12th (9 A.M. to 4 P.M.), and Sunday, the 13th (10 A.M. to noon). It is intended primarily for those in general practice, and there will be no fee for attendance. Those intending to be present should notify the dean of the medical school at the hospital as soon as possible.

Fellowship of Medicine and Post-Graduate Medical Association.

The last lecture of the series on Prognosis will be given by Mr. Cecil Joll, at 4.0 P.M. on Dec. 9th, at the rooms of the Medical Society of London, 11, Chandos-street. His subject is Goitre, with special reference to Thyrotoxicosis. Free clinical demonstrations will be given at 6.0 P.M. on Dec. 7th at St. John's Hospital, Leicester-square, by Dr. S. E. Dore, and at 3.30 P.M. on Dec. 8th at the Royal Northern Hospital by Mr. Hamilton Bailey. A course of lectures on endocrinology will be given by Dr. W. Langdon Brown at the rooms of the Medical Society of London at 8.30 P.M. on Monday and Fridays from Jan. 11th to 29th. A list of special courses in 1932 is now ready. Other syllabuses and information may be had from the secretary of the association at 1, Wimpole-street, W.1.

Geneva University Club.

This club has been founded for students and teachers from the University of Geneva who are in England. A dinner will be held on Wednesday, Dec. 16th, at 7.45 P.M. Particulars may be had from the secretary, Dr. Lina Potter, 31, Highbury-place, N.5.

International Association for the Prevention of Blindness.

The general assembly of this association was held in Paris on Nov. 14th. Prof. de Lapersonne, from the chair, spoke of the recent formation of national committees in the Argentine, Belgium, Brazil, France, Germany, Hungary, Italy, Mexico, Portugal, and Spain. Dr. Humbert, secretary general of the association, announced the establishment, in the near future, of a permanent secretariat. Dr. Coutela submitted a report on Present Legislation and Prophylaxis of Industrial Eye Accidents, and Mr. Bernard Cridland one on the Value of a Complete Investigation of the Causes of Blindness as a First Step in Prevention. He advocated uniform statistics on the causes of blindness in the different countries, and this proposal was endorsed.

International Union against Tuberculosis.

As we have already announced, the next conference of this organisation will be held at The Hague and Amsterdam from Sept. 7th to 9th, 1932, under the chairmanship of Prof. Nolen. The principal subjects of discussion will be (1) the Relationship between Allergy and Immunity, (2) Gold-therapy, and (3) After-care Schemes for the Tuberculous. Speakers from this country will include Prof. S. Lyle Cummins, Dr. L. S. T. Burrell, and Dr. Harley Williams. Further particulars may be had from the secretary of the National Association for the Prevention of Tuberculosis, Tavistock House North, Tavistock-square, London, W.C.1.

Australian and New Zealand Medical Association in England.

The winter dinner of this association will be held at the Trocadero Restaurant, London, on Friday, Dec. 11th, at 7.45 for 8 P.M., with Mr. T. P. Dunhill in the chair. Sir John Thomson-Walker and Prof. William Wright will be the official guests. All medical visitors from Australia and New Zealand, whether already members of the association or not, are invited to be present. The hon. secretaries, Mr. E. T. C. Milligan and Mr. Philip J. Jory, may be addressed at 25, Queen Anne-street, W.1.

Pathology Department at Bolton.

Last week Mrs. W. E. Walker opened a pathological department at Bolton Infirmary, the cost of which, nearly £10,000, has been defrayed by the family of the late Colonel Walker. It includes a large laboratory with working and sterilising rooms, a museum for medical exhibits, and a small chapel in the mortuary. The department is now making more than 2000 investigations a year.

New Liverpool Radium Institute.

Lord Derby last week laid the foundation-stone of the new Liverpool Radium Institute and Hospital for Cancer, which is estimated to cost £70,000. There is enough money in hand to justify beginning the work, and it is hoped that, as it proceeds, the flow of help will enable it to be completed without interruption. The hospital receives patients not only from Merseyside, but from West Lancashire, West Cheshire, South Westmorland, North Wales, and the Isle of Man.

New Heart Department.

A new building specially designed for the heart department was opened at the London Hospital last week. A tablet recording the fact that it is a memorial to the late Sir James Mackenzie, F.R.S., was unveiled by Mrs. C. W. Charrington, who declared the department open. Dr. John Parkinson, physician in charge of the department, reminded the assembly that the London was the first general hospital in the world to arrange for special attention to this branch of medicine.

THE LANCET: SUBSCRIPTION RATES.

INLAND	One Year	£2 2 0
	Six Months	1 1 0
	Three Months	0 10 6
ABROAD	One Year	2 10 0
	Six Months	1 5 0
	Three Months	0 12 6

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS.

THE EXPIRING LAWS BILL was passed through all its stages in the House of Lords on Thursday, Nov. 26th.

NATIONAL HEALTH INSURANCE.

On Wednesday, Nov. 25th, in the House of Commons Sir E. HILTON YOUNG, Minister of Health, moved the second reading of the National Health Insurance (Prolongation of Insurance) Bill. He explained that the Bill repealed the measure introduced a year ago, and was for the purpose of prolonging in health insurance those who were coming out of it by reason of unemployment at the end of 1931. It preserved medical and cash benefits, and its duration was to Dec. 31st, 1932. Assuming a basis of 70,000 persons prolonged in insurance by the Bill, the cost to the Exchequer would be £95,000 in respect of contributions and £15,000 in respect of grants. The Bill was proposed as a matter of urgency.

The Bill was read a second time.

On Thursday, Nov. 26th, the Bill passed through Committee, and on Friday, the 27th, it was read the third time.

IMPORTS OF FRESH FRUIT, VEGETABLES, AND FLOWERS.

NEW RESTRICTIVE DUTIES.

On Monday, Nov. 30th, the House of Commons went into Committee of Ways and Means on a resolution on which a Bill is to be founded authorising the imposition of customs duties up to 100 per cent. on certain fruits, vegetables, and horticultural products imported from foreign countries. The articles to which the duties may be applied by Orders issued by the Minister of Agriculture include the following:—

Fresh fruits: Cherries, currants, gooseberries, grapes (hothouse), plums, strawberries.

Fresh vegetables: Asparagus, green beans, broccoli and cauliflowers, carrots, chicory (salad), cucumbers, endive, lettuce, mushrooms, peas (green), potatoes (new), tomatoes, turnips.

Flowers, &c.: *Cut flowers, plants in flower, flowers* attached to bulbs, foliage, bulbs, rose trees.

Sir JOHN GILMOUR (Minister of Agriculture), in moving the resolution, said that these emergency powers were being taken by the Government as part of their policy to redress the balance of trade, and as the first instalment of their proposals for assisting British agriculture. It was hoped that the result would be to encourage market gardeners, smallholders, and allotment holders to increase the home production of food. The luxury articles which it was proposed to tax could not be described as the food of the people, and in present circumstances it would be well to shut them out. The estimated annual value of the fruit, vegetables, and flowers which would be subject to these emergency duties was £13,000,000, of which early luxuries accounted for between £7,000,000 and £8,000,000. Dominion products would be exempt from the proposed duties.

The Opposition criticised the proposals as a small part of a larger policy which, it was alleged, the Government intended to pursue for the taxation of food in defiance of pledges given during the General Election.

Major MILNER said that clearly the prices of all foodstuffs dealt with in these proposed Orders must go up. Many of them were not luxuries or non-essentials. Tomatoes, for instance, were something in the nature of a necessity to many poor people in the East End of London and elsewhere. At present they were sold at low prices and were a most valuable food, and were recommended by the medical profession because of the large amount of vitamins which they contained. It was a remarkable fact that this resolution left the field open for imports of any quantity of fruit pulp, dried fruits, vegetables, or bottled or tinned stuffs.

FRESH FRUIT AND VITALITY.

Dr. SALTER said that there was a really permanent shortage of soft fruits on sale in the industrial areas at any reasonable price. That was partly due to bad and disorganised marketing arrangements. It was also due to the increase in jam making, the manufacture of fruit jelly, and increased canning and bottling. If the Government taxed these articles they would put them outside the reach of working people altogether. Many members of the Opposition did not object to taxing articles of purely luxury consumption, but they did object very strongly to making dearer the essential articles of consumption of the working people. There had been an increase in recent years in the consumption of fruit, fish, and vegetables by the working classes, and that had been accompanied by an improved standard of health, and a lower death-rate. Directly the drop in wages became marked, however, there had been a corresponding fall in the consumption of these other articles of diet, and an increase in the consumption of bread. Bread consumption had been rising steadily. There was no doubt that even now a great majority of the workers in the poorer districts did not succeed in getting sufficient fruit and vegetables to keep them up to a standard of first-class vitality, or up to the standard of the better-paid classes. He need not dwell on the physiological value of fruit and vegetables in a general diet. As a medical man who had practised for 30 years in an industrial neighbourhood he had personally observed the steady improvement in health and vigour—mental and physical—of the people as they learned to, and were able to, improve the range of their dietary, and to include more fruit and vegetables. He looked with the gravest alarm on any measure which would have the effect of restricting the diet of the people in this direction which would result from making fruit and vegetables dearer.

After further debate,

The resolution was agreed to by 306 votes to 40.

HOUSE OF COMMONS.

WEDNESDAY, NOV. 25TH.

Income-tax Allowances.

Sir FRANK SANDERSON asked the Chancellor of the Exchequer whether, in view of the fact that, under the provisions of the Budget introduced in September last for purposes of income-tax assessment, the personal allowance for a married man had been reduced by £75 whereas the personal allowance for a single man had been reduced by £35 only, he would consider in his next Budget amending the reduction of allowances imposed upon a married man to an amount not exceeding £70, in order to bring it into line with the reduction of £35 for a single man.—Major ELLIOTT (Financial Secretary to the Treasury) replied: The question raised by my hon. friend would be one for consideration in connexion with next year's Budget, as to which, as he will appreciate, I cannot make any anticipatory statement.

National Health Insurance.

Mr. GORDON MACDONALD asked the Minister of Health the number of insured persons under the National Health Insurance Act on Dec. 31st, 1913, and also on the latest date when the information was available, specifying the number of women in each case.—Sir E. HILTON YOUNG replied: 13,383,000 persons, 3,961,000 of whom were women, were insured for National Health Insurance purposes on Dec. 31st, 1913. On Dec. 31st, 1930, there were 17,012,000 persons insured for National Health Insurance purposes, of whom 5,757,000 were women. I would point out that in December, 1913, employed persons remained in insurance and entitled to the ordinary National Health Insurance benefits until they attained the age of 70, but as from Jan. 2nd, 1928, this limiting age was reduced to 65, as a result of the introduction of Contributory Old Age Pensions at age 65.

THURSDAY, NOV. 26TH.

Government and Factory Legislation.

Major NATHAN asked the Home Secretary whether he proposed to introduce a Bill for the consolidation or amendment of the law relating to factories.—Sir HERBERT SAMUEL replied: This question has not yet been considered by the Government, and I regret that I am not in a position to make any statement.

Children's Bill.

Sir VIVIAN HENDERSON asked the Home Secretary whether he proposed to introduce a Children's Bill next spring.—Sir HERBERT SAMUEL replied: The Government hope to be able to introduce a Children Bill in the course of the present session.

The Death Penalty.

Mr. MANDER asked the Home Secretary if he was able to make any statement with reference to the policy of the Government on the abolition of the death penalty.—Sir HERBERT SAMUEL replied: I am not in a position to make any statement at the present time.

Census Returns and Housing.

Major NATHAN asked the Minister of Health when the census particulars as to housing would be published; and when the publication of the report on the census returns would be completed.—Sir E. HILTON YOUNG replied: As hitherto, the census housing statistics will be included in the county part series of the substantive census reports. It is anticipated that this series will begin to issue about the middle of next year, and will be followed by a number of volumes dealing with particular subjects; but it cannot at present be stated when the publication of all census reports will be completed.

Overcrowding in East End of London.

Major NATHAN asked the Minister of Health whether he was aware of the increase in overcrowding in the East End of London caused by the diversion of dwelling-houses to industrial purposes; and whether he proposed to take any action to prevent such diversion in the future.—Sir E. HILTON YOUNG replied: I am aware that a number of dwellings have been converted to industrial use. Control over development of this kind can best be secured by legislation for extending planning powers to build areas, and the question of such legislation is under consideration.

Lieut.-Colonel FREMANTLE asked the Minister of Health if he would consider, as promised by his predecessor on July 30th last, some way of amalgamating the returns compiled with regard to houses occupied, erected, or reconditioned, and the houses and populations dealt with in clearance and improvement areas during the year, and of issuing the result in such a way as to reduce the need for frequent questions in Parliament and to provide the most useful guide to progress made and needed.—Sir E. HILTON YOUNG replied: I will certainly consider this question, and shall be glad if it is possible to secure my hon. and gallant friend's objects in the way proposed.

Local Authorities and Housing Schemes.

Mr. HARRIS asked the Minister of Health whether his department had held up any housing schemes submitted by local authorities since Oct. 1st on the grounds of economy; if so, what schemes were affected; and if there was any curtailment in the housing programmes of local authorities as a result of the economy policy of the Government.—Sir E. HILTON YOUNG replied: There has been no instance of refusal to approve housing proposals on the ground of economy, but in present circumstances I have found it necessary to discuss with local authorities in certain cases some modification of their proposals with a view to securing the provision of a type of house which can be let at a lower rent than has been usual in the past. I have no information showing that local authorities have made any substantial curtailment of their programmes.

Rural Housing.

Mr. HARRIS asked the Minister of Health what progress had been made under the powers under the Housing (Rural Authorities) Act, 1931; whether the committee appointed thereunder had held any meetings; whether any schemes had been submitted to him for approval; and, if so, whether they had been approved, modified, or turned down. Captain ERSKINE-BOLST and Sir WILLIAM JENKINS asked questions on the same subject.—Sir E. HILTON YOUNG replied: The committee appointed under the Act of 1931 held a meeting in September. Applications have been received from 136
rural district councils in respect of 7003 houses and
under investigation, but they have not yet been conside
by the committee, and none has yet been approved.

Slum Clearance.

Mr. SALT asked the Minister of Health the number
houses in England and Wales which were estimated to
dealt with under slum clearance schemes as part of
Housing Act, 1930, during the five-year period commenc
Jan. 1st, 1931; and how many houses had been demolis
under this scheme up to Oct. 31st last or the latest availa
date.—Sir E. HILTON YOUNG replied: The estimate m
by the larger urban authorities provided for the demoli
of 57,000 such houses. The number actually demolis
up to Sept. 30th last was 201.

Local Authorities and Health Services.

Mr. ANEURIN BEVAN asked the Minister of Health whet
any local authorities had restricted their health serv
since the end of August; and, if so, in what direction h
the economies been effected.—Sir E. HILTON YOU
replied: I have no complete information as to the act
which has been taken by local authorities generally a
consideration of the circular on the review of local expe
ture, which was issued in September last, but the infor
tion at my disposal does not suggest that local authori
have restricted the provision already made under t
existing health services.

Conveyance of Hospital Patients.

Mr. MCGOVERN asked the Minister of Health whet
as it was the practice of health authorities owning infecti
diseases hospitals to convey patients from their homes
the hospitals, he would issue a circular recommending l
authorities that they should arrange for patients to
conveyed to their homes on discharge.—Sir E. HIL
YOUNG replied: Local authorities have power to arra
for the conveyance of persons to their homes on discha
from hospital, and I understand that many authori
already use this power. But it is a matter entirely wi
the discretion of the local authorities, a discretion w
which there are no grounds for interference.

Mr. MCGOVERN: In view of the fact that it is a hea
problem, and that there is a considerable danger of th
children on being discharged contracting chills, and t
there is also the danger of infecting other children in pu
conveyances on the way home, will the right hon. gentle
consider the advisability of urging the local authorities
make special provision in these cases?

Sir E. HILTON YOUNG: These are matters pertinent
the consideration of the local authorities, and I do
think that there is any evidence of need for my interfere
with their discretion.

MONDAY, NOV. 30TH.

Child Marriage in India.

Miss RATHBONE asked the Secretary of State for In
the result of the inquiries which his predecessor undert
to make last summer as to whether, and to what ext
the provincial governments were carrying into effect
administrative measures recommended by the Joshi C
mittee two years ago as being necessary to the succes
enforcement of the Act for the restraint of child marriag
Sir S. HOARE replied: I have not received any report
the subject since I took office, but I will make inquiries.

Cost of Pensions Administration.

Mr. JOEL asked the Minister of Pensions the cost
administering his department during each of the last
years; the numbers of final awards now in existence;
the numbers of new cases submitted to it in each of the
three years, and the number of pensions of any sort wh
had been granted as a result.—Major TRYON replied:
cost of administration of my department for each of
five years ending on March 31st next is as follows
1927–28, £1,508,000; 1928–29, £1,200,000; 1929–
£1,205,000; 1930–31, £1,221,000; 1931–32, £1,039,
(estimated). The cost of administration for the curr
year will be equivalent to 5s. 1d. for every £ of expendit
on pensions and other benefits, and may be compared w
a corresponding cost of 6s. 2d. per £ in 1927–28, and w
the maximum figure of 1s. 3d. per £ in 1920–21. At
end of September last 430,000 final awards of disabil
pension or retired pay were in payment. The number
fresh applications of all kinds submitted to the Minis
can only be given with completeness for the last two ye
For the year ended September, 1930, fresh applicati
from all classes of claimant, including disabled officers a
men, widows and dependants, numbered 24,000, and
the year ended September last 13,600. Awards of pens

or other grants were made in 3570 cases in the former year, and in 3170 in the latter.

Disability Pensions.

Mr. Fuller asked the Minister of Pensions the number of ex-Service men, on the latest available date, who are drawing disability pensions on account of the Great War, and the weekly cost to the State.—Major Tryon replied: At the end of September last 478,000 ex-Service officers and men were drawing disability pensions, of which the total weekly cost was about £490,000.

[In answer to a supplementary question by Captain Crookshank, Major Tryon said that the total expenditure on war pensions since 1914 was £1,015,000,000.]

Quality of Foreign Imported Milk.

Major Braithwaite asked the Minister of Agriculture whether his attention had been called to the importation of fresh milk from Denmark and Holland; whether such milk was accompanied by any certificate that it was produced under conditions comparable to those enforced in this country under the Milk and Dairies Order; what steps were being taken, having regard to the existence of the disease in Denmark and Holland, to ascertain whether such imports contained the virus of foot-and-mouth disease and to eliminate the risk of the disease being spread in this country; and what action was being taken to require the distributors of such milk to disclose its origin to consumers.—Sir J. Gilmour replied: My attention has been called to this matter. Imported milk is not required to be accompanied by a certificate to the effect mentioned in the question; but the Public Health (Imported Milk) Regulations made by the Ministry of Health in 1926 require the registration of all consignees of milk—other than condensed or dried milk—from abroad, and further lay down a standard of hygienic quality to which all such milk must conform. As regards the danger of introducing the virus of foot-and-mouth disease, I am informed that under the Danish law all liquid milk exported must have been pasteurised, and that although such pasteurisation is not absolutely required by the Dutch law, it is the practice in Holland to pasteurise milk intended for exportation to this country; and I understand that imported fresh milk is again pasteurised in this country before it is distributed. The process of pasteurisation is fatal to the virus of foot-and-mouth disease. In reply to the last part of the question, no Marking Order applicable to imported milk has been made under the Merchandise Marks Act, 1926, but the question of marking is to some extent covered by Section 1 of that Act.

The Price of Milk.

Sir Philip Dawson asked the Minister of Agriculture whether his attention had been called to the difference in the price which the farmers received for their milk from the milk combine in London and the price at which it was sold to the consumer; and whether, in view of the combine's proposal to raise the price of milk to the consumer, he would take any action to investigate the matter under the terms of the Foodstuffs (Prevention of Exploitation) Act.—Mr. Hore-Belisha (Parliamentary Secretary to the Board of Trade) replied: The Food Council have been in communication with the Permanent Joint Milk Committee of producers and distributors, and understand that the increase in price of 1*d.* per quart which it is proposed to charge during December and January will be paid to the producers.

Ventilation of the Division Lobby.

Sir William Davison asked the First Commissioner of Works if he would arrange for the better ventilation of the division lobby when used by supporters of the Government at the time of the taking of a division, seeing that some 100 Members were now often confined for nearly 20 minutes in the small space of the division lobby, with no open windows and little or no ventilation.—Mr. Ormsby-Gore replied: I fear that little improvement in the ventilation of the division lobbies is possible, except at considerable expense. In the summer months the windows can be left open, but in winter this practice would unduly lower the temperature for those hon. Members using the lobbies for writing letters between divisions. I understand that the average time taken for Members to pass through the Government lobby during the last fortnight is about 14 minutes.

Hospital Sweepstakes.

Mr. Whyte asked the Home Secretary if, in view of the failure of the efforts to prevent the people in Great Britain participating in the Irish sweepstakes, he would consider the legalising of sweepstakes under proper safeguards as a means of assisting the hospitals of this country.—Sir H. Samuel replied: Apart from other considerations, no representations have been received by my predecessors or myself which would indicate that the hospital authorities desire a measure of this character. On the contrary, I understand that in June of this year the British Hospitals' Association passed a resolution to the effect that "the Association is not in favour of any amendment of the law affecting public sweepstakes which purports to be for the benefit of voluntary hospitals."

Mr. Whyte asked if the Home Secretary was aware that through the agency of legalised sweepstakes all the hospitals in the Irish Free State were in a better position to engage in research work and to give their patients efficient service, while in this country we were in a lamentable position.

Viscount Ednam asked whether any representations had been made to the Irish Free State that English hospitals should participate in the proceeds of the sweepstakes.

Sir H. Samuel replied in the negative.

Sir F. Hall asked whether, in the event of the Hospitals' Committee changing its attitude, the Home Secretary would consider the introduction of legislation to enable sweepstakes to be held here.

No reply was given to this question.

Marking of Foreign Butter.

Sir William Davison asked the Minister of Agriculture whether any steps could be taken to expedite the coming into operation of the Order in Council under the Merchandise Marks Act, 1926, with regard to the labelling of foreign butter with a description of origin, seeing that the order made a short time ago was not to come into operation till next May, and meanwhile it was impossible for the public to know whether they were buying British or foreign butter or a blend of both.—Sir J. Gilmour replied: The period during which a Draft Order in Council under the Merchandise Marks Act, 1926, has to lie before Parliament and the minimum period which must subsequently elapse before the Order becomes operative, are fixed by Statute, and I have therefore no power to take such steps as those suggested by my hon. friend.

In answer to a further question by Sir William Davison, who asked if the right hon. gentleman was aware that 20 children in the South of England were recently seized with illness after eating butter of unknown origin, Sir J. Gilmour said that that was a matter for the Ministry of Health.

TUESDAY, DEC. 1st.

Small-pox Cases.

Mr. Groves asked the Minister of Health whether any deaths occurred amongst the small-pox cases quoted in Columns A, B, C, and D of the report of the Chief Medical Officer for 1930; if so, what was the number and the ages in each class respectively; and whether he would arrange for the deaths, if any, to be included in this table in future reports.—Sir E. Hilton Young replied: Sixteen deaths occurred among the small-pox cases tabulated on page 19 of the report of the Chief Medical Officer of my department for the year 1930. These deaths, following the classification adopted in the tabular statement, were distributed as follows:—

Col. A (successfully vaccinated): 5 deaths, of persons aged 46, 47, 56, 66, and 77 years respectively.

Col. B (successfully revaccinated): no deaths.

Col. C (unvaccinated): 8 deaths, of persons aged 3 weeks, 4 weeks, 7 weeks, 8 months, 8 months, 10 years, 11 years, and 13 years respectively.

Col. D (vaccinal condition doubtful): 3 deaths, of persons aged 45, 58, and 50 years respectively.

As regards the last part of the question, as the table referred to relates to certain districts only, and the total number of deaths from small-pox during the year is given elsewhere in the report, I do not think it is necessary to make the suggested addition to the table.

Income-tax Allowances.

Sir Mervyn Manningham-Buller asked the Chancellor of the Exchequer whether he would consider the possibility of incorporating in the Budget of 1932 a provision by which a man with an invalid wife, whom he had to support, might claim a housekeeper's allowance for income-tax purposes.—Major Elliot (Financial Secretary to the Treasury) replied: All relevant matters will be taken into account in framing the Budget statement. My hon. friend will not, however, I am sure, expect me to anticipate that statement.

Hospital Food at Winchester.—During the first nine months of the present year the cost of food per head per day at the Hampshire County Hospital, Winchester, has been reduced to 11*d.* per day. This is a saving at the rate of £1 1*s.* 4*d.* per annum, and is partly due to the fall in the price of commodities. It is officially stated that the patients were supplied with English beef "and everything of the best."

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY, Dec. 8th.—8.30 P.M., PSYCHIATRY. Dr. Aubrey J. Lewis: The Appreciation of Time in Mental Disorder.

FRIDAY.—5.30 P.M., CLINICAL. (Cases at 4.30 P.M.) Mr. C. P. G. Wakeley: 1. Sarcoma of Orbit. Mr. A. Roeyn Jones: 2. Bilateral Snapping Knee. Mr. Rodney Maingot: 3. Papilloma of Face. 4. Cavernous Nævus of Leg. Dr. Bernard Myers: 5. Gaucher's Disease. Dr. Terence East: 6. Hodgkin's Disease. Dr. E. Stolkind: 7. Raynaud's Disease, Scleroderma and Paralysis Agitans. Dr. Dorothy Hare: 8. Diverticulum of Duodenum. Dr. Parsons-Smith: 9. Aortic Aneurysm and Bronchiectasis. Dr. Bernard Schlesinger: 10. Congenital Cerebellar Ataxia. Dr. R. C. Lightwood: 11. Lymphadenoma with Paraplegia. Other cases will be shown. 5 P.M., OPHTHALMOLOGY. Clinical Meeting at the Royal Eye Hospital, St. George's-circus, S.E. Tea at 4.30 P.M. Cases will be shown.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

THURSDAY, Dec. 10th.—8.15 P.M. (in the London School of Hygiene and Tropical Medicine, Keppel-street, W.C.), Dr. G. W. M. Findlay: Rift Valley Fever.

MEDICAL SOCIETY OF INDIVIDUAL PSYCHOLOGY, 11, Chandos-street, Cavendish-square, W.

THURSDAY, Dec. 10th.—8.30 P.M., Dr. Crookshank: Physical Findings in Psycho-Neurosis.

BIOCHEMICAL SOCIETY.

FRIDAY, Dec. 11th.—3.30 P.M. (at the London School of Hygiene and Tropical Medicine, Keppel-street, W.C.). Communications and Demonstrations.

OPTICAL SOCIETY.

THURSDAY, Dec. 10th.—7.30 P.M. (at the Imperial College of Science and Technology, South Kensington, S.W.). Dr. F. Campbell Smith and Dr. Ensor R. Holiday: A New Photo-Electric Spectrophotometer. Also other exhibits.

PADDINGTON MEDICAL SOCIETY.

TUESDAY, Dec. 8th.—9 P.M. (at the Great Western Royal Hotel, W.). Mr. W. McAdam Eccles: Pitfalls in the Anatomy, Diagnosis, and Treatment of Hernia.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.

FRIDAY, Dec. 11th.—8.45 P.M. (at the Miller Hospital, Greenwich, S.E.), Sir William Willcox: Recent Researches into the Causation of Chronic Rheumatism. (Purvis oration.)

HARVEIAN SOCIETY.

THURSDAY, Dec. 10th.—8.30 P.M. (at Paddington Town Hall), Buckston Browne Prizewinner: Treatment of Shock by Intravenous Therapy.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

THURSDAY, Dec. 10th.—5 P.M., Col. W. P. MacArthur: The Surgeon and Old-time Plague. (Thomas Vicary lecture.)

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Dec. 7th, to SATURDAY, Dec. 12th.—INFANTS HOSPITAL, Vincent-square, S.W. Special post-graduate course in Diseases of Infants occupying each afternoon from 2 to 5 P.M., with demonstrations and lectures.—LONDON LOCK HOSPITAL, Dean-street, W. Post-graduate Course in Venereal Disease. Every afternoon.—MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W. Wed. at 4 P.M., free lecture by Mr. Cecil A. Joll on Goitre, with special reference to Thyrotoxicosis.—ST. JOHN'S HOSPITAL, Leicester-square, W.C. Mond. Free demonstration in O.P. Dept., by Dr. S. E. Dore, at 6 P.M.—ROYAL NORTHERN HOSPITAL, Holloway-road, N. Tues., 3.30 P.M. Free demonstration in Clinical Lecture room by Mr. Hamilton Bailey. *Further particulars from the Fellowship of Medicine.*

ST. MARK'S HOSPITAL, City-road, E.C.

THURSDAY, Dec. 10th.—4.30 P.M., Dr. C. ukes: Pathology of Intestinal Obstruction.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.

TUESDAY, Dec. 8th.—3.15 P.M., Dr. W. R. Reynell: Sexual Neuroses.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James' Hospital, Ouseley-road, Balham, S.W.

WEDNESDAY, Dec. 9th.—4 P.M., Maj. M. Sinclair: Fractures of the Lower Limb Bones. (Cinematograph lecture demonstrating Bohler methods of treatment.)

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.

WEDNESDAY, Dec. 9th.—4 P.M., Dr. R. Lane: Pernicious Anæmia.

ST. PAUL'S HOSPITAL, Endell-street, W.C.

WEDNESDAY, Dec. 9th.—4.30 P.M., Mr. C. H. Mills: Ur logical Cases.

CENTRAL LONDON THROAT, NOSE, AND EAR HO PITAL, Gray's Inn-road, W.C.

FRIDAY, Dec. 11th.—4 P.M., Mr. N. Asherson: Chron Otorrhœa.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospit 49, Leicester-square, W.C.

TUESDAY, Dec. 8th.—5 P.M., Dr. A. C. Roxburgh: Eru tions due to Physical Agents.

THURSDAY.—5 P.M., Dr. J. E. M. Wigley: Pemphig and Allied Eruptions.

KING'S COLLEGE HOSPITAL MEDICAL SCHOO Denmark-hill, S.E.

THURSDAY, Dec. 10th.—9 P.M., Dr. W. Sheldon: Diagnos and Treatment of Asthma in Children.

NATIONAL COUNCIL FOR MENTAL HYGIENE.

THURSDAY, Dec. 10th.—5.15 P.M. (at 11, Chandos-street, W Dr. Ernest Jones: Psycho-Analysis.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russe square, W.C.

WEDNESDAY, Dec. 9th.—4 P.M., Prof. E. L. Collis: Heal of the Industrial Worker.

MANCHESTER ROYAL INFIRMARY.

TUESDAY, Dec. 8th.—4.15 P.M., Mr. W. H. Hey: Rece Advances in Surgery.

FRIDAY.—4.15 P.M., Dr. F. E. Tylecote: Demonstrati of Medical Cases.

ANCOATS HOSPITAL, Manchester.

THURSDAY, Dec. 10th.—11 A.M., Mr. P. G. McEvedy Clinical Demonstration. 4.15 P.M., Dr. Arno Renshaw: Recent Advances in Laboratory Method

MANCHESTER VICTORIA MEMORIAL JEWISH HOS PITAL, Elizabeth-street.

WEDNESDAY, Dec. 9th.—4.30 P.M., Dr. H. Morri Carcinoma of the Stomach. (With demonstration Radiograms.)

UNIVERSITY OF SHEFFIELD.

FRIDAY, Dec. 11th.—3.30 P.M. (at the Royal Infirmary Dr. A. W. Fawcett: Carcinoma of the Breast.

VICTORIA INFIRMARY, Glasgow.

WEDNESDAY, Dec. 9th.—4.15 P.M., Dr. Ivy McKenzi Medical Cases.

FACULTY HALL, St. Vincent-street, Glasgow.

TUESDAY, Dec. 8th.—4 P.M., Dr. A. B. Kelly: Significan of Signs and Symptoms in Upper Food Passages.

Appointments

HOGG, W. A., M.B., B.S. Durh., has been appointed Division Surgeon to the Darlington Division of the St. John Ambulance Brigade.

Births, Marriages, and Deaths

BIRTHS.

BRADLEY.—On Nov. 25th, at Stratton on the Fosse, the wife Dr. W. H. Bradley, Downside School, of a daughter.

CRABTREE.—On Nov. 10th, at Wentworth House, Ilfracomb the wife of J. B. Crabtree, F.R.C.S. Eng., a daughter.

CROSSMAN.—On Nov. 28th, at White's Hill, Hambrook, Glos the wife of Dr. F. W. Crossman, of a daughter.

MCGARVEY.—On Nov. 24th, at Westfield, Wells, Somerset, th wife of Dr. McGarvey, of a daughter.

MOORE.—On Nov. 22nd, the wife of Dr. D. L. H. Moore, of Alm House, Exmouth, of a son.

POWELL.—On Nov. 24th, at Earlsridge, Redhill, Surrey, the wi of Dr. Ronald R. Powell, of a son.

SMITH.—On Nov. 24th, the wife of K. Shirley Smith, M.D. M.R.C.P., Central-mansions, N.W., of a daughter.

MARRIAGES.

HEWITT—HORN.—On Nov. 21st, at Holy Trinity, Brompto Parish Church, London, Edward John Campbell Hewit M.B., Ch.B. Edin., D.P.M. Lond., Napsbury, St. Albans, t Joyce Russell, eldest daughter of Mr. and Mrs. W. H. Horn Luton, Bedfordshire.

DEATHS.

BRUCE.—On Nov. 27th, at Artillery-mansions, Westminster S.W., Maj.-General Sir David Bruce, K.C.B., LL.D., F.R.S. late R.A.M.C.

CHARMAN.—On Nov. 26th, after a short illness, Francis Walde Charman, M.B. Lond., of Cross Deep, Twickenham, aged 3

CLAREMONT.—On Nov. 23rd, suddenly at Portsdown-avenue Golders Green, Louis Bennett Claremont, M.R.C.S. L.R.C.P., aged 71 years.

CLARKE.—On Nov. 24th, at Bolton-street, London, W., Joh Henry Clarke, M.D., Consulting Physician to the Londo Homœopathic Hospital, in his 79th year.

DENHAM.—On Nov. 24th, at Greystoke, Albemarle-road Beckenham, Norman Denham, L.D.S. Eng.

JOHNSON.—On Nov. 11th, at Navarino, Walton-on-Naz Edward S. Johnson, L.M.S.S.A., aged 63.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices *Births, Marriages and Deaths.*

NOTES, COMMENTS, AND ABSTRACTS

THE PHYSIQUE OF YOUNG LONDONERS.

SOME COMPARATIVE NOTES.

BY H. H. BASHFORD, M.D., B.S. LOND.,
MEDICAL DEPARTMENT, GENERAL POST OFFICE.

FOR many years the General Post Office has been one of the largest employers of juvenile labour in London. With regard to height and weight its standards of requirement have not materially changed and it has consistently drawn the majority of its boy messengers from the so-called working-class districts of the metropolis. It seems not unreasonable to suppose therefore that these boys may be regarded, in respect of their height and weight, as a fairly accurate index of the general physique of a very large group of young Londoners. For this reason it has been thought that the following brief notes may be of some general interest.

COMPARISON WITH A QUARTER OF A CENTURY AGO.

During a recent research into the problems of growth from an industrial standpoint, I was able to compare a consecutive series of 200 boys of 16 examined between the years 1929–1931 with a similar consecutive series of 200 boys of 16, drawn from the same class and examined under the same conditions between the years 1905 and 1908—i.e., 23 years ago.

Average height (ht.) and weight (wt.) of 200 *boys of* 10 *examined* 23 *years ago compared with* 200 *boys of* 16 *at the present day.*

23 years ago.		*Present day.*	
Ht.	Wt.	Ht.	Wt.
5 ft. 5 in.	8 st. 3 lb.	5 ft. 6½ in.	9 st. 5 lb.

In all cases measurements were taken in indoor clothes or tunics, without belts and boots.

From this it will be seen that the 200 boys of to-day weighed upon the average 1 st. 2 lb. more than their 200 predecessors of 23 years ago and were 1½ in. taller. Of the earlier group only three scaled 11 st. or over; of the present-day group 22 scaled 11 st. or over.

Turning to the girls, a comparison of a consecutive series of 200 girls of 16 examined between 1927–1930 with a similar consecutive series of 200 girls of 16 examined between 1902–1905—i.e., 25 years ago—gave the following results.

Average height and weight of 200 *girls of* 16 *examined* 25 *years ago compared with* 200 *girls of* 16 *at the present day.*

25 years ago.		*Present day.*	
Ht.	Wt.	Ht.	Wt.
5 ft. 2¼ in.	7 st. 12 lb.	5 ft. 3¼ in.	8 st. 4 lb.

In all cases measurements were taken in indoor clothes, without boots or shoes.

It will thus be observed that the 200 girls of to-day were an inch taller, upon the average, than their 200 predecessors of 25 years ago. Allowing 3 lb. which I am assured is not excessive, for the difference between the long skirts, heavy petticoats, stays, &c., which were customarily worn 25 years ago, the 200 girls of to-day averaged 9 lb. more in weight than the earlier group.

In so far as these 400 boys and girls may be regarded as representative, and in spite of the fact that all of them spent a part of their infancy in the war years, these comparisons would seem to suggest a very considerable all-round improvement in the physique of young Londoners during the last quarter of a century.

Coming next to the rates of growth and height of present-day boys in Post Office employment in London, a consecutive series of 100 boys, examined at 14, again at 16, and again at 18, gave the following results. Between 14 and 16 the average growth in weight was approximately 2 st. and the average growth in height exactly 5 in. Between 16 and 18 the average growth in weight was 9½ lb. and the average growth in height 1½ in.

COUNTRY AND TOWN COMPARED.

Thanks to the kindness of its medical officer, I have also been able to compare this series with a similar consecutive series of 100 boys examined at the same ages at a well-known public school in the country. These boys were living and being educated under usual public school conditions. The Post Office boys were performing a 48-hours' week as indoor or outdoor messengers, inclusive of six hours' schooling, but with institutional facilities for games and gymnastic exercises out of working hours. Owing to differences in weighing conditions, an equalising deduction of 3 lb. has been made in the actual weights of the Post Office boys.

Average height and weight of 100 *Public School boys (country) compared with* 100 *Post Office boys (London).*

Public School Boys (Country).

At 14.		Same boys at 16.		Same boys at 18.	
Wt.	Ht.	Ht.	Wt.	Ht.	Wt.
5 ft. 2 in. ..	7 st.	5 ft. 7 in. ..	9 st.	5 ft. 9½ in.	10 st. 4 lb.

Post Office Boys (London).

At 14.		Same boys at 16.		Same boys at 18.	
Ht.	Wt.	Ht.	Wt.	Ht.	Wt.
5 ft. 2 in ..	7 st. 3 lb.	5 ft. 7 in...	9 st. 2 lb.	5 ft. 8½ in.	9 st. 11½ lb.

From this it will be seen that, while the average actual weight was slightly higher in the Post Office group at 14 and 16, the average height was the same at both ages and the average increase in height and weight between these ages practically identical. Between 16 and 18, however, the public school group forged ahead to the extent to 1 inch in average height and 6½ lb. in average weight. This may possibly be due to the continuance at the public school of a regular régime of work, play, and hours of sleep, less likely to be observed by working boys, over 16, living under metropolitan conditions. Compared with a similar consecutive series, however, of 100 Post Office boys of 18 examined in 1905–1908—i.e., 25 years ago—the present-day Post Office group were upon the average 1½ in. taller and 10½ lb. heavier. Of the earlier series only four were 6 ft. or over, of the present-day series 10 were 6 ft. or over.

Turning to the average rate of growth amongst the present-day girls in Post Office employment, it was found on examining a consecutive series of 100 girls at 14 and again at 16 that their average increase in height between these ages was 1 in. and their average increase in weight 11 lb. Thanks to the kindness of its headmistress, I have also been able to compare this consecutive series with a consecutive series of 100 girls at a well-known public school in the country, with the results shown in the following table. From this it will be observed that, both in their actual average weights at 14 and 16 and in the rate of increase between these ages, the public school girls, living a largely athletic life in country surroundings, have a marked advantage, putting on 1½ in. and 1 st. between 14 and 16 as against 1 in. and 11 lb in the case of the Post Office girls.

Average height and weight of 100 *Public School girls* (*country*) *compared with* 100 *Post Office girls* (*London*).

Public School Girls (*Country*).

At 14.		Same girls at 16.	
Ht.	Wt.	Ht.	Wt.
5 ft. 2½ in. ..	7 st. 11 lb.	5 ft. 4 in. ..	8 st. 11 lb.

Post Office Girls (*London*).

At 14.		Same girls at 16.	
Ht.	Wt.	Ht.	Wt.
5 ft. 2½ in. ..	7 st. 6 lb.	5 ft. 3½ in. ..	8 st. 3 lb.

In both series, measurements were taken in indoor clothes without shoes.

It is, of course, admitted that these series are relatively small. But in so far as conclusions may be drawn from them, it would appear that a public school life in the country possesses a definite physical advantage, in the case of the girls, after the age of 14, and in the case of the boys after the age of 16. It would also appear, however, very clearly that the average London boys and girls of to-day are considerably the physical superiors of their counterparts in the last generation.

For permission to publish these notes I am indebted to the secretary and the chief medical officer of the General Post Office, and to Mr. A. K. Chalk and other officers of the London Postal Service and Mr. F. G. Lamb of the Medical Department for their kindly help.

MEDICINAL PLANTS OF SOUTHERN AFRICA.

Messrs. E. and S. Livingstone (16, Teviot-place, Edinburgh) announce the forthcoming appearance of a work on the plants of Southern Africa, giving an account of their medicinal uses, chemical composition, pharmacological effects and toxicology in man and animal. The specimens number over 2500 and the book, which will contain 300 pages, 18 text illustrations, and 12 coloured plates, is the work of Dr. J. M. Watt, professor of pharmacology in the Witwatersrand University, Johannesburg, assisted by Dr.phil. Maria G. Breyer-Brandwijk, research worker in phytochemistry in the department of pharmacology. The flora of Southern Africa has produced a number of popular remedies many of which are still in common use, but the folk-medicine of the native tribes is vanishing before the advancing tide of civilisation with its synthetic drugs. Although many of the plants are poisonous, precise knowledge is often lacking about their effects, and the authors note the increasing commercial exploitation of these plants, particularly as proprietary and secret remedies. The book is intended to assist the greater utilisation of the natural products of South Africa and to lead to a critical examination of the claims made for any remedies which come on the market. It is offered at a special pre-publication subscription price of 20s. post free.

ENTERTAINMENT AND CHARITY.

"The Black Parrot," a new play in three acts, by H. Fletcher Lee, has been chosen for Mrs. Frank Worthington's special matinée in aid of the Royal Free Hospital and the East London Hospital for Children. The Aldwych Theatre has been given for the production on Thursday, Dec. 10th, by Mr. Wilfred Fletcher. In eight years with these matinées, always bringing out a new play, Mrs. Frank Worthington has cleared £34,974 for different charities.

Vacancies

For further information refer to the advertisement columns.

All Saints' Hospital for Genito-Urinary Diseases, 91, Finchley-road, N.W.—H.S. At rate of £150.

Argyll and Bute Mental Hospital, Lochgilphead.—Jun. Asst. M.O. £300.

Birmingham, Dudley-road Hospital.—Gynæcologist and Obstetrician. £750.

Birmingham, Queen's Hospital.—Hon. Surgeon.

Bradford, Royal Eye and Ear Hospital.—Jun. H.S. £150.

Brighton, Royal Sussex County Hospital.—H.S. £150. Also Cas. H.S. £120.

Brighton, Sussex Eye Hospital.—Hon. Clin. Asst.

British Institute of Radiology, Welbeck-street, W.—Sub-Editor. £400–£500.

Burnley, Victoria Hospital.—Two H.S.'s. Each at rate of £150.

Cambridge, Addenbrooke's Hospital.—Res. Anæsthetist and Emergency O. £130.

Cardiff City Mental Hospital, Whitchurch.—Sen. Asst. M.O. £57

Coventry and Warwickshire Hospital.—Res. House and Asst. H.S.'s. Each £125.

Dreadnought Hospital, Greenwich.—Physician.

East London Hospital for Children, Shadwell, E.—Res. Med. Reg. £150. Also Second H.P. At rate of £125.

Edinburgh Royal Infirmary.—Anæsthetist. £200.

Hastings, Royal East Sussex Hospital.—Jun. H.S. At rate o £100.

Hospital for Epilepsy and Paralysis, Maida Vale, W.—Clin. Asst. for Ear, Nose and Throat Dept.

Hospital of St. John and St. Elizabeth, 60, Grove End-road, N.W.—Res H.P. At rate of £100. Also Surg. to Ear, Nose, and Throat Dept.

Hospital for Tropical Diseases, Endsleigh-gardens, W.C.—Surg

Hull, Beverley-road Institution.—Asst. M.O. £300.

Indian Medical Service.—European Officers.

Ipswich, East Suffolk and Ipswich Hospital.—Cas. O. £120.

Khartoum, Wellcome Tropical Research Laboratories.—Bacteriologist. £E.660.

Lewisham Hospital, High-street, Lewisham, S.E.—H.P. At rat of £80.

Liverpool and Samaritan Hospital for Women.—Hon. Asst. Surg

Liverpool University and Maternity Hospital.—Obstetric Asst £500.

L.C.C.—Consulting Laryngologists. Each 200 gns.

London Jewish Hospital, Stepney Green, E.—Hon. Asst. Gynæcologist.

London University.—Geoffrey Duveen Travelling Studentship i Oto-Rhino-Laryngology. £450.

Manchester, Ancoats Hospital.—Part-time Asst. for Pathologica Dept. At rate of £200. Also Clin. Asst. for Out-patien Clinic. 10s. 6d. per attendance.

Manchester Royal Infirmary.—Res. M.O. £200.

Metropolitan, Ear, Nose and Throat Hospital.—Surgeons.

Mildmay Mission Hospital, Austin-street, Bethnal Green, E.—Asst. Cas. O. At rate of £125.

Miller General Hospital, Greenwich-road, S.E.—H.P. and 2 H.S.' Each at rate of £125.

Newark General Hospital.—Res. H.S. £175.

North-Eastern Fever Hospital, St. Anne's-road, Tottenham, N.—Asst. M.O. £350.

North-Western Fever Hospital, Lawn-road, Hampstead, N.W.—H.P. £80.

Oxford County and City Mental Hospital, Littlemore, near Oxfor Deputy Med. Supt. £500.

Poplar Hospital for Accidents, East India-road, Poplar, E.—Second Res. O. £175.

Princess Louise Kensington Hospital for Children, St. Quintin avenue, North Kensington, W.—H.S. At rate of £100.

Reading, Royal Berkshire Hospital.—H.S. and H.P. Each a rate of £150.

Rotherham Hospital.—H.P. £180.

Royal Free Hospital, Gray's Inn-road, W.C.—Clin. Assistantship in Spec. Depts.

Royal Northern Hospital, Holloway, N.—H.S. At rate of £7

Royal Waterloo Hospital for Children and Women, Waterloo-road S.E.—P.H. At rate of £100.

St. Mark's Hospital for Cancer, Fistula and Other Diseases of th Rectum, City-road, E.C.—Hon. Asst. Surgeon.

St. Mary's Hospital for Women and Children, Plaistow, E Hon. Dental Surg.

St. Peter's Hospital for Stone, &c., Henrietta-street, Cover Garden, W.C.—Hon. Asst. Surg. Also Clin. Assts.

Salford Royal Hospital.—H.P. £125.

Sheffield, Jessop Hospital for Women.—Asst. H.S. At rate of £10

Sheffield Royal Infirmary.—Ophth. H.S., Asst. Aural and Ophth H.S., and Asst. Cas. O. Each at rate of £80.

Southampton, Royal South Hants and Southampton Hospital.—Two H.S.'s and Cas. O. Each at rate of £150.

West London Hospital, Hammersmith-road, W.—H.P. and H.S to Special Depts. Each at rate of £100.

Willesden General Hospital, N.W.—Clin. Assts. for Out-patie Dept.

ADDRESSES AND ORIGINAL ARTICLES

PROGNOSIS OF PROSTATIC ENLARGEMENT.*

By Kenneth Walker, F.R.C.S. Eng.,
SURGEON IN CHARGE OF GENITO-URINARY DEPARTMENT, ROYAL NORTHERN HOSPITAL; SURGEON TO ST. PAUL'S HOSPITAL.

Prostatic enlargement is of importance chiefly because it commonly interferes with micturition. Where it does not do so it may cause very little inconvenience and have no effect on the patient's general health.

The first practical question is: What is the most likely course that an enlargement will take? Will the prostate continue to grow and interfere further with micturition, or is there any chance that the condition will remain in statu quo?

The answer to this question, so far as the enlarged and so-called adenomatous prostate is concerned, can be given with a large degree of certainty. Definite enlargement of the prostate is almost always progressive, but its rate of progress is not uniform. Over long periods the symptoms of enlargement may remain unaltered, and not infrequently the patient will enjoy interludes of actual improvement. I have had patients under my care whose condition over a period of five or six years has appeared to be stationary. They have risen once or twice at night to micturate, have noted a variable degree of difficulty in passing their urine, and on catheterisation have been found to have under 2 oz. of residual urine. Sometimes the symptoms are a little worse, sometimes a little better, the variation being due to such factors as the state of the bowels, indiscretions in diet, the weather, and fatigue. But when one reviews the history of these patients one finds that, if they survive the other dangers that encompass old age, in the long run their prostatic condition calls for active treatment. They are indeed like patients with a valvular lesion of the heart. For years the compensation is sufficient to their needs; but then there comes some new factor—an infection of the bladder, a congestion of the prostate, or a deterioration in the muscle tone of the bladder following an attack of influenza. The compensation breaks down, their symptoms become urgent, and active intervention is required. Often the accident that marks this crisis is a sudden attack of retention; more rarely it is recurrent hæmorrhage. But for one reason or another the outlook for these cases of mild obstruction becomes suddenly changed, and, willingly or unwillingly, they are driven to accept operative interference.

Postponement of Operation.

We must then ask: Is the medical man who has made the diagnosis of prostatic enlargement justified in waiting, or should he anticipate future trouble by insisting on surgical intervention even when the symptoms are trifling and the patient is put to little inconvenience? In other words, what is the prognosis of the expectant attitude and what is the prognosis attached to immediate operation? If the patient's prostate is definitely enlarged and almost certain sooner or later to need operative treatment, will an expectant attitude increase the risk when the evil day arrives? My own view is that it will not, or at any rate that the measure of increased risk due to waiting is so slight as to be justified, provided always that the patient is kept under constant observation and his residual urine and renal function carefully watched. On the other hand, is anything to be gained by waiting? Here again I would answer that in certain cases of elderly men there may be much to be gained by postponing drastic measures. It may be that, quite apart from the prostate, the expectation of life is only a few years. Why, therefore, should we reduce this expectation by insisting on a serious operation which after all he may never require? If he survives long enough for his prostate to give trouble, well and good; in the meantime let us give him the benefit of the doubt.

But what about the man of lesser age, with an expectation of ten or more years of life? Can we afford to wait in his case? Again I think we can, provided he be so situated that he can remain under careful scrutiny. A complete retention, if it is skilfully handled, does not materially increase the risk of subsequent prostatectomy, and a sudden and serious hæmorrhage with clot-retention is unlikely. Moreover there is a certain disadvantage in operating on a patient who suffers no inconveniences other than those of rising once at night to pass his urine and waiting a little longer than is normal for the starting of his stream. Quite a number of patients after prostatectomy rise not once but twice at night to micturate. If on a patient suffering from so small an inconvenience we inflict a serious and unpleasant operation and subsequently leave him, in his own opinion, not better but worse off than he was before, has he no grounds for grumbling? Surely it were a better policy (provided always that he runs no serious risks) to wait until he has realised the inconvenience of his prostate, and can appreciate the benefit conferred on him by its removal.

There is yet another argument that those in favour of immediate operation in all cases of early enlargement will advance. They will point out that some 15 per cent. of seemingly innocent prostates have within them foci of malignancy. For no other reason than that it will eliminate the risk of malignant disease they consider an immediate prostatectomy advisable. Yet when we examine this argument more carefully we find that it is not so weighty as it appears at first sight. A prostatectomy does not entail the removal of every shred of prostatic tissue, for much may be left behind in the prostatic bed. An operation does not therefore free the patient from all risk of malignant disease, although it may reduce it. That this is so is shown by the fact that malignant recurrence in the capsule after prostatectomy is by no means uncommon. Whilst, therefore, a 15 per cent. risk of malignancy must always be borne in mind in balancing the pros and cons of operation, it cannot be advanced as a complete justification of the wholesale removal of all enlarged prostates.

Many may object that I am adopting an attitude that errs on the side of conservatism. They will point out that far more lives are sacrificed by postponing operation until the patient's health is impaired and his renal function damaged than are lost by over-hasty measures. But while it is true that neglect to operate when an operation is necessary is a commoner fault than operating when an operation is non-essential, I am still of the opinion that if the patient is kept under careful observat [illegible] ectant attitude is generally permissible. My justification for this view is that, even in the best hands and with the most promising of patients, prostatectomy still remains an operation to which a very definite risk is attached. Since this risk is the chief factor in arriving at a prognosis and framing a line of treatment, it will be helpful at this point to go into the question in greater detail.

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* A lecture delivered before the Fellowship of Medicine.

Mortality-rate of Prostatectomy.

It is difficult to estimate the present-day mortality of prostatectomy. Hospital statistics and various private records show wide variations. My own examination of the statistics of two great London hospitals in 1926 revealed as high a figure as 20 per cent.[1] This agrees with the mortality-rate for the general hospitals which was arrived at by Sir J. Thomson-Walker[2] in his Lettsomian lecture of last year, and it compares very badly with the figure for St. Peter's Hospital, which, over a period of 29 years, worked out at 9·9 per cent. Private records have a mortality even less than that of the special hospitals—namely, somewhere about 6 or 7 per cent.

The wide difference in the mortality-rate of general and special hospitals and the less marked variation between the latter and private practice can easily be explained. The lower rate at a hospital like St. Peter's is partly due to the greater experience in prostatic surgery of the operating surgeon and partly to the better knowledge of after-treatment possessed by the resident and nursing staffs. The fact that the prognosis in private practice is still better than that of the special hospitals is due to the fact that patients of the hospital class are more likely to neglect themselves and only to appeal for help in the later stages of their disease, when renal function has begun to deteriorate and the risks of operation are markedly increased. Even when we consider only private patients, it must be confessed that an operation with a mortality of 7 to 8 per cent. must still be classed as a dangerous one. With all the improvements in technique that have occurred in the last 20 years, total prostatectomy still remains a very formidable proceeding.

All the figures given above refer to the suprapubic operation, the one most commonly employed in this country and on the Continent. For the perineal route, which finds greater favour in America, better results are claimed, and H. H. Young[3] has published a mortality as low as 3·4 per cent. for 1049 consecutive cases. That these good results are not universal is shown by the statistics given by J. B. Deaver,[4] who compares the results of 11 different surgeons and arrives at an average operative mortality of 9·6 per cent. When, therefore, general rather than individual statistics are examined, but little difference is found in the mortality-rates of the perineal and the suprapubic operation.

FACTORS AFFECTING THE MORTALITY-RATE.

Age in itself does not markedly influence results. It is the ailments of old age rather than years that must be taken into account. The mere fact that the patient has arrived at the age of 80 is in itself a sign that his constitution is fundamentally sound, and a hale old gentleman of that age may well be a better subject for prostatectomy than a patient of 60 in whom is found marked arterio-sclerosis or a doubtful myocardium. Most surgeons who have an extensive genito-urinary practice have operated on patients of four score years and more, and Freyer performed the operation successfully in a man of 89. It must, however, be borne in mind that the reserve power of octogenarians is limited, and that, should any additional factor exist that renders operation difficult or dangerous, a conservative attitude should be favoured.

Renal lesions.—A comparison of the mortality tables of different authors shows that uræmia is the commonest cause of death after prostatectomy. The state of the kidney is therefore the most important factor in assessing the risk attached to operative interference. For this reason improved methods of estimating renal function and greater attention to the preoperative treatment of the kidneys have done more than any other advance of the last 15 years to lower the risks of a prostatectomy. But even when special care is exercised in postponing operation on patients with damaged kidneys until time has been given for their recovery, uræmia still remains the chief stumbling-block in the path of the genito-urinary surgeon. We can, it is true, arrive at a fair appreciation of the capacity of the kidney to get rid of the waste products of the body, but unfortunately with all our methods we are still unable to assess its reserve power. It is in the lack of margin in the functioning of the kidneys that is the hidden danger.

Prostatectomy is still a septic operation, and sepsis on top of a damaged kidney is the commonest cause of death after operation. If the prostatic capsule be examined microscopically a few days after prostatectomy it will be found that the lymphatics are crowded with organisms, streaming back towards the general lymphatic circulation. Eventually these organisms may reach the kidney and, by infecting an organ that is just managing to meet the needs of the body, bring about death due to a combination of sepsis and uræmia. We may have succeeded in arriving at a fair knowledge of the power of the kidney to excrete. We have no means of estimating its powers of rising to an emergency, and no ability, in spite of such methods as the estimation of blood cholesterol, to assess the patient's resistance to sepsis. It is this intervention of sepsis that explains Cabot's contention that the risks of operation are lessened when the patient has suffered before operation from a mild degree of septic infection, and has achieved a certain degree of immunity to his infecting organisms. It is also on this account that preliminary drainage in cases of gross infection of the bladder is of such vital importance. Sepsis is the unknown factor in our calculation, and at present we have no power to estimate it.

Cardiac lesions.—Next to renal complications as a cause of death after prostatectomy must be placed shock, cardiac failure, and hæmorrhage. Of these three, shock is probably the least important, and when a patient collapses after operation he generally dies of shock and hæmorrhage combined rather than as the result of shock alone. Moreover, the liability to shock varies according to the type of operation performed. It is less marked after the perineal than after the suprapubic operation, and in my experience greater with the open operation than with the old rapid and blind enucleation. Hæmorrhage, once the chief anxiety of the operating surgeon, has nowadays lost some of its terrors. This is due partly to better methods of controlling it, but chiefly to the greater use of blood transfusion.

But, although the vascular system must take second place to the kidneys as a source of anxiety after operation, the existence of a cardiac lesion must always be regarded as an unfavourable point in prognosis. So also must a raised or lowered blood pressure. A low blood pressure predisposes to collapse during spinal anæsthesia, and—what is of vital importance—carries with it a greatly increased risk of thrombosis and embolism during convalescence. Since pulmonary embolism is by no means a negligible danger after prostatectomy, a low blood pressure should be regarded as an unfavourable factor in prognosis. Of less importance is an increase of pressure, unless it is indicative of renal disease; in this case the pressure will probably fall with the improvement in renal function brought about by preoperative treatment. Operation should always be postponed until the pressure after a period of instability has reached a constant and lower level. Strange to say, high blood pressure does not appear to predispose to reactionary and secondary hæmorrhage.

Pulmonary lesions.—Pneumonia and bronchitis are responsible for some 10 per cent. of deaths after prostatectomy, and for this reason the state of the respiratory tract must be carefully considered when estimating the risks of operation. Unfortunately spinal anæsthesia has little or no effect in reducing the incidence of pulmonary complications, since an intrathecal injection puts out of action the lower costal and abdominal muscles, and thereby hampers respiration. All that we can do to diminish the dangers of bronchitis and pneumonia is to be rapid in our operation, and whenever possible to avoid operating during the winter months. In bad risks the enucleation may be carried out under a combination of local and sacral or caudal anæsthesia. Every care must be taken to reduce the chances of pulmonary complications by sitting the patient up in bed, combating abdominal distension, and maintaining an equitable room temperature. Oral sepsis should have been dealt with previously.

Diseases of the bowel.—Ileus and dilatation of the stomach, although only occasionally directly responsible for death, may prove awkward complications during convalescence. Moreover, by embarrassing respiration and cardiac action, they have an indirect influence on mortality that is greater than the statistical tables show. For this reason the state of the gastro-intestinal tract must be carefully considered when arriving at a prognosis. The old gentleman with a large pendulous abdomen and a history of constipation and flatulence is one who is only too likely to prove troublesome. Post-operative ileus may be the proverbial straw that breaks the camel's back, for not only does it increase the risks of pulmonary complications and cardiac failure, but it is also a predisposing cause of secondary hæmorrhage.

Diabetes.—Before the advent of insulin, glycosuria of any serious degree was considered to be an absolute contra-indication to any operation on the prostate. Not only did the condition increase enormously the risk of anæsthesia but, by predisposing to grave sepsis, diabetes affected the whole course of convalescence. But now that glycosuria is amenable to treatment it is no longer the danger that it was and, provided the patient receives expert pre- and post-operative treatment, it only slightly increases the risks he runs.

Prognosis with Reference to Function.

In prognosis we must consider not only preservation of life but also restoration of function. Fortunately we are here on firmer ground, for the vast majority of patients can be promised that, if they will submit to the ordeal of prostatectomy, a complete restoration of function will be the result. Before making such a promise the presence of certain complications must naturally be excluded. I am convinced that where the bladder wall has been irretrievably damaged by distension and sepsis a complete restoration of function, as evidenced by the entire disappearance of residual urine, is unlikely. Should a diverticulum exist, the result will be still less favourable, unless of course the sac be extirpated before or after operation. So also is a complete recovery of the upper urinary passages impossible in old and neglected cases. All that can be expected here is a restoration of renal function up to a certain level, the level depending on the severity and the duration of the previous obstruction and the amount of sepsis that has been superimposed.

Only in exceptional cases are poor end-results obtained. Every operator has had to deal with such unfortunate operative sequelæ as obstruction, chronic sepsis, calculus formation, persistent fistula, incomplete control, and (rarely) the recurrence of symptoms from the subsequent hypertrophy of prostatic tissue remaining adherent to the capsule after enucleation; but for all practical purposes of prognosis these accidents may be discounted, for by suitable treatment they may be remedied when they occur. It must, however, be admitted that, although lack of control is usually only a temporary inconvenience after suprapubic enucleation, there is a far greater danger of its permanency after the perineal operation.

Occasionally patients inquire before operation whether their genital functions will be impaired by the removal of their prostate. They may be told that, although sterility is inevitable, virility will not be markedly affected. It might be thought that to the patient of prostatic age this point would not be of great importance, but the sexual function sometimes survives well into the 'seventies, and there are many elderly men who would not sacrifice what they regard as a distinction if such sacrifice could be avoided. Loss of virility is more common after the perineal operation.

Prognosis apart from Prostatectomy.

Catheter life.—As a temporary expedient or as a preliminary to operation, catheterisation is an excellent treatment. As a permanent measure it carries a high mortality, because enlargement of the prostate provides ideal conditions for the maintenance of bladder sepsis with its attendant risk of infection of the kidneys. Squier's[5] observations on 30 cases of prostatic obstruction treated without operation provide an excellent illustration of this. He found that half the inoperable cases died within five years of the onset of obstructive symptoms if catheters were not employed. If, on the other hand, patients were put on catheter life, the expectation of life was reduced to two years and ten months. These figures perhaps throw an unnecessarily gloomy light on catheterisation, but even when we take Harrison[6] and Lydston's[7] figures of four or five years we are forced to conclude that catheter life carries with it a poor prognosis. Nevertheless all of us know of patients who have wielded a catheter for many years with apparent impunity, and I have now under my care a medical man who has been passing one since 1016. Such cases are by no means rare, especially amongst well-to-do and intelligent men who can devote to their catheterisation sufficient time and care.

Perhaps the most important factors in determining the prognosis is the ease with which the catheter is passed and the frequency with which it is required. When the prostate is very much enlarged, when the posterior urethra is tortuous and difficult to navigate in the school. This child is therefore considered to have been an abortive case, an opinion which is confirmed by the epidemiological evidence. All the children examined had developed, as a result of their illness, antibodies which were capable of neutralising a virulent virus of poliomyelitis, and were therefore proved to have suffered from this disease.

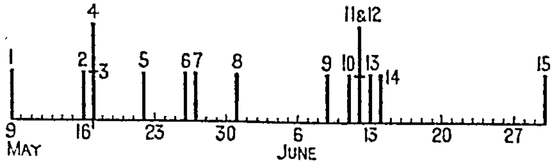
Four children were tested who were in no way ill during the term. Two were close contacts with the disease and two were remote contacts, one being a day-boy. These children were shown by the neutralisation test to have developed immunity. The contact immunity thus demonstrated supports the experimental work of F. W. Stewart and C. P. Rhoads (1929). They immunised monkeys by repeated intradermal inoculation of small doses of the virus without causing any detectable clinical disturbance.

Only two children were examined who did not come in contact with this epidemic at all; in one case the virus was not neutralised and the monkey died in four days, while in the other the serum neutralised the virus. The activity of the virus is usually controlled by incubation with saline instead of with normal serum, as some apparently normal people have acquired active immunity, probably by an unrecognised contact (H. J. Shaughnessy, 1930, W. L. Aycock, 1930).

Epidemiology.

It is generally recognised that poliomyelitis does not appear to any great extent in isolated communities, and in the epidemic form prefers to attack rural areas. It is therefore often impossible to obtain individual information as to the mode of spread. In this epidemic a small community was affected, and it was easier than usual to watch and report on the possible source of infection and the mode of spread and therefore to deduce the probable incubation period.

FIG. 1.



Incidence of cases.

Fig. 1 shows the manner in which the cases occurred during the epidemic, which was spread over seven weeks.

Case 1 lives during the holidays at a garage and often plays in the garage yard. No evidence could be obtained from his parents as to a possible source of infection among their friends or neighbours, and presumably passengers in a car which stopped in the yard brought the infection to the child, who was most likely to be playing there. On the first night of the term (May 8th) he slept in his dormitory next to Case 3; on the second night (May 9th) he slept in a small sickroom next to Case 2 who was in the sickroom with burns on his face (Fig. 2); on the first two days of the term he sat for meals next to Case 4.

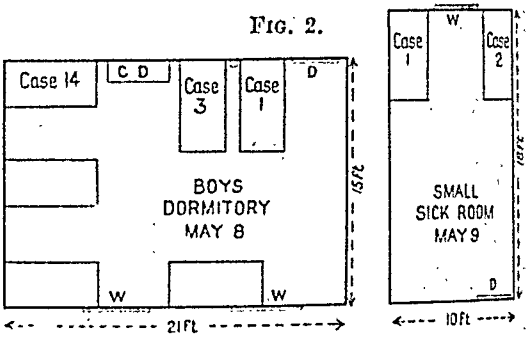
Fig. 2 shows the very close contact that existed during the first two nights between three of the four cases which occurred at the beginning of the epidemic. Not only did the children sleep in the same room but they slept in beds next to one another.

Further evidence of close contact playing a part in the spread of the disease is provided by the fact that the only adults to contract the disease were Case 4 and Case 10, who shared a room and were with each other during most of their free time.

Case 9 developed prodromal symptoms on June 9th and was isolated on that day. Case 13, who slept a few feet from her, developed prodromal symptoms four days later—on June 13th—and a palatal weakness on June 16th.

It is of interest that not a single case of illness occurred among the four house boys or among the children of the chauffeur or the garden boys, suggesting again that close association is necessary for spread to take place by contact.

FIG. 2.



Position of beds on first two nights of the term.

The last case—Case 15—occurred 15 days after the school had broken up. Her brother was also at the school and went home with her. He was in no way ill during the term, but was shown by the neutralisation test to have derived immunity, and therefore to have carried the infection at some time for a sufficient period to induce the presence of immune bodies in the serum. The sister was either infected by the brother after returning home—which appears unlikely owing to the rapid loss of infectivity in poliomyelitis—or she was a carrier and succumbed to her own infection, or contracted the disease at school and fell ill after an incubation period of 15 days.

Convincing evidence of spread by carriers could not be found, nor would it be expected in such a localised epidemic, where every other child might be a healthy carrier. The usual external factors such as flies, dairies, water, and drainage were considered at the time without a full experimental investigation being made, as these methods had not then been considered.

Although evidence is brought forward to show that spread by direct contact probably took place in this epidemic there is considerable difference of opinion as to the usual mode of spread, and there are authorities that may be quoted in favour of spread by direct contact, spread by carriers, and spread by means of some external factor.

W. L. Aycock (1928 and 1929) and J. Calverly (1917) state that no doubt exists that spread from case to case takes place, and the latter gives a figure of 30 per cent. as the number of cases which contracted the disease in this manner in the Vermont epidemic. C. Kling denies the contact theory since, in his opinion, it is impossible to account for all the cases in this way. It seems probable that in the larger epidemics the abortive case is not sufficiently considered. If it were, it might not be necessary to cite methods other than contact.

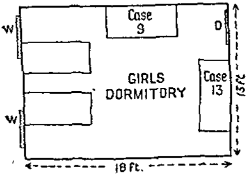
S. Longhin and C. Aurian (1925) consider that carriers account for cases in which no direct spread can be traced. Wickman (1911) was of the opinion that carriers were capable of transmitting the disease, but he included abortive cases in this group. Kling does not believe that carriers spread the disease, but excludes abortive cases from the group. He states that he has only been able to trace two authenticated healthy carriers in the whole literature. On the other hand, it is shown in this paper that many contacts derive immunity without being in any way ill, and therefore might be expected to take on the function of healthy carriers so long as the virus was present on the pharyngeal mucosa.

The evidence in favour of spread by an external factor is considerable, and such authorities as Aycock and Kling believe this to be a frequent method of spread, Kling favouring a spread by water and Aycock by milk. In the case of water-spread, by canals and rivers, it may be that abortive cases travelling in this way spread the disease more easily than the water itself. I. Wickman (1905), J. C. Dingman (1916), and Aycock (1927) quote series of cases of spread by milk, and the latter are most convincing, but neither Kling nor Levaditi has been able to demonstrate the presence of the virus in milk.

Information as to the *incubation period* can be obtained in some of the cases in the present epidemic by assuming the mode of spread to be by contact, as seems very probable from the foregoing description. Case 1 developed an acute attack on May 9th. Seven to nine days later three members of the school with whom Case 1 had been in particularly close contact developed the disease, one an abortive attack, and two with cranial nerve involvement. The incubation period appears to be seven to nine days in these cases.

Between May 30th and June 9th there was no fresh case, and, if Case 9 contracted the disease by direct contact, the incubation period would be at least nine days in this instance. Fig. 3 shows close contact between two cases. Case 9, the only fatal case, presumably infected Case 13 on June 9th. Case 13 succumbed to the prodromal stage of the disease on June 13th, which would point to an incubation period as short as four days. In Case 15, the last case to occur in this epidemic, it seems quite possible that the child became infected at school, developing symptoms 15 days later.

FIG. 3.



A possible sleeping contact later in the term.

The *point of entry* of the disease is frequently held to be the pharynx, a theory which is borne out by the pharyngitis which was a constant feature of the present epidemic, and by the occurrence of poliomyelitis after tonsillectomy. Aycock and E. H. Luther (1929), investigating 1224 cases of poliomyelitis, found that 16 had developed the disease within one month of an operation for removal of the tonsils and that all of these had occurred between the seventh and the sixteenth days inclusive. I have records of two cases of bulbar poliomyelitis following tonsillectomy at 11 and 15 days respectively.

Summary.

1. The article reports an epidemic of poliomyelitis in which all the cases were either of the bulbar or abortive type. There was no spinal case in the epidemic.

2. The clinical features of the prodromal or abortive cases were not such that a sporadic case could be diagnosed. The most typical features were vomiting or nausea at the commencement of a feverish attack with a slight cough. Pharyngitis was present in every case; the child did not feel particularly ill and appeared to have recovered by the third day.

3. Bulbar involvement developed on the third or fourth day of the prodromal period. There was an increased cough and the child now looked ill and perhaps frightened. A cranial nerve palsy developed on the third to ninth day of the illness, though most usually on the fourth or fifth day.

4. The diagnosis was confirmed experimentally in monkeys by the neutralisation test. Control tests made were with saline and serum.

5. As a result of the experimental work the abortive cases and several contacts were shown to have developed immunity.

6. Evidence in favour of a spread from case to case is produced. The incubation period is shown to be seven to nine days in the cases in which a contact infection can be assumed.

My thanks are due to Dr. Donald Paterson for seeing several of the cases with me and confirming the clinical findings, and to Dr. A. E. Clarke Kennedy for his help and criticism in preparing this paper. Dr. R. W. Fairbrother and Dr. E. Weston Hurst, of the Lister Institute, made it possible for me to carry out the experimental work in collaboration with them, and gave me the benefit of their intimate knowledge of the whole subject.

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BIRMINGHAM HOSPITALS CENTRE.—The executive board announces that it proposes to give immediate effect to its policy "by bringing into existence, at the earliest possible date, as a first instalment of the whole scheme, a hospital unit of about 500 beds, with the necessary nursing block, auxiliary services and administration block, together with the reorganised medical school of the University, which is a necessary and integral part of the scheme." Sir Charles Grant Robertson, the chairman of the board, claims that the primary reasons why £625,000, about one-half of the cost, has been obtained in 18 months, and during a time of severe trade depression, is that the character of the scheme a new type of voluntary hospital, integrally and organically connected with a progressive medical school, appealed alike to the public imagination and reason, and that it aimed at giving Birmingham "something that no other city in Great Britain had or was planning to have." The estimated cost of the whole scheme is £1,244, 670, which gives a cost per bed of £1,482; for the hospital alone the cost will be £1252 per bed. The estimated cost of the first instalment of 500 beds is £702,000, or £1,401 per bed.

CLINICAL AND LABORATORY NOTES

GUMMA OF MEDIASTINUM.

BY H. F. JOYNT, M.B. DURH.

A MAN, aged 74, was seen by me on Feb. 9th, while I was visiting his daughter. He appeared to be a very hale and hearty man for his years. He came to consult me on Feb. 25th, complaining of blueness of the face (especially on stooping) and of inability to put his collar on. He gave a four days' history.

He had spent many years in South America. He had suffered for some years from cough and shortness of breath. Just under two years previously he had been operated on in the South of England for a tumour of the right testicle, as to the nature of which he was unable to give any information. He had a pain in his left leg just above the ankle which had been present for ten days. There was no dyspnœa or dysphagia.

The ears were permanently cyanosed, and the face as a whole was bluish, and became very blue on bending down. The neck was swollen in the lower part, especially at the sides. The venules visible in the epigastrium and along the edge of the ribs were not especially prominent. The pupils were equal and reacted to light and accommodation. The urine was normal. He stated that there was no pain in the chest. The percussion note was good over the chest and sternum. Respiration was normal except for tubular breathing just below the inner end of the right clavicle. The heart sounds were very indistinct, but there were no bruits.

Dr. J. J. Conybeare, who was called in, agreed that the patient had a tumour of the anterior mediastinum and that it was in all probability malignant. The swelling in the lower end of the left tibia was looked upon as another manifestation of that disease. The tumour of the testicle was thought to be the primary disease, though the time since operation was long. Radiography of the chest showed an opacity extending for an inch to the right of the sternum opposite the upper four inches. The tibia showed a central egg-shaped cavity without bony spicules. Later the Wassermann test was returned as strongly positive.

It was determined to put the patient on iodides and to increase the dosage rapidly, as an arrow shot at a venture.

On March 7th the right arm showed signs of œdema and the patient complained of occasional pains in the chest. On March 15th both arms were œdematous, and the right very tense. He had been taking over grs. 120 of potassium iodide daily for nearly a fortnight. His face was not so blue. On March 20th he had acute conjunctivitis in both eyes, but the dosage of iodides was not reduced. On March 22nd his cough was very troublesome. On March 25th his eyes were much better. He became dyspnœic if he moved his right arm, the œdema of which had spread to the shoulder. There was no alteration in the condition of the chest. On March 30th he had a sudden attack of dyspnœa, and was getting much weaker. Mucus *in the* trachea was very troublesome. The iodides were omitted. From this date until April 6th his condition was so precarious that the end was expected at any time. He had
of 'inheuttacks of cardiac failure with dyspnœa, and his
presumalred.
yard brou6th, the condition of his right arm was
likely to bbe improved and the œdema of the
term (May almost absent. From this day he
Case 3; on tter, iodides being restarted in small
a small sickro œdema from his arms had gone by
room with burneck was less swollen and no blueness
days of the ternce then he has been given a course
Fig. 2 show *collosol* iodine. In August he was
existed during thn, though he still became blue in
the four cases whi and was somewhat short of breath.
epidemic. Not onl circumstances the pathologist's
room but they slept of his testicle was not received
until early in May. Shortly it states: "No normal testicular substance. All tissue chronically inflamed. Some cells, which stain badly, thought to be new growth."

Beckenham, Kent.

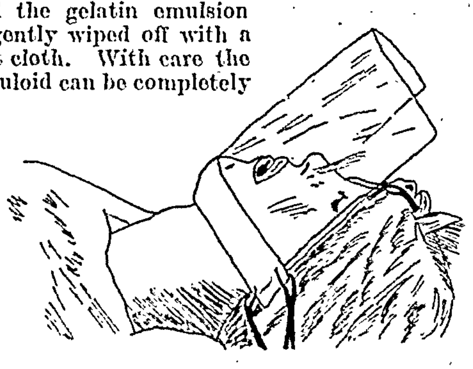
A SIMPLE FACE-SCREEN.

BY KENELM H. DIGBY, M.B. LOND., F.R.C.S. ENG.,
HO TUNG PROFESSOR OF CLINICAL SURGERY AND PROFESSOR OF SURGERY, UNIVERSITY OF HONG-KONG.

IN operations upon the head and neck it is always desirable to shut off the more or less septic nose and mouth region from the operation area. Various methods are in common use, but they are not entirely satisfactory.

An ideal face-screen must be easily applied, and it should be capable of adjusting itself with changes in position of the head and neck. It should be impervious to watery fluids, and it should not interfere with a clear view of the face, by the surgeon as well as by the anæsthetist. This note describes a simple face-screen which in our experience has fulfilled these requirements.

An old celluloid X ray film is soaked in boiling water to which a little washing-soda has been added and the gelatin emulsion is gently wiped off with a soft cloth. With care the celluloid can be completely cleaned without being scratched. The sheet of celluloid is then cut to form screens of convenient sizes, a larger one 12 in. by 7 in. and a smaller one 7 in. by 6 in. To one of the sides of the screen a strip of stout cloth 2 in. broad is attached, either by celluloid solution in amyl acetate (or in acetone), or else by machine stitching, or hand sewing. The cloth edge enables the celluloid sheet to be secured firmly to the towels, especially the one previously clipped round the patient's head. It is easy by using four clips to bend the thin celluloid sheet so that it stands well away from the nose and mouth. The accompanying illustration shows the screen applied for any *operation* upon the neck.



The celluloid is inflammable and should not be used if a cautery or diathermy is to be employed. The screens can be sterilised by boiling for ten minutes in water. After being sterilised several times the celluloid begins to become opaque and fresh celluloid must be used.

Celluloid is composed of nitrocellulose and camphor and is very slowly hydrolysed by boiling water with the production of free acid. This makes it advisable to sterilise the screens apart from metal instruments. It also makes their sterilisation in an autoclave inadvisable, for the acid rots the fibre of the cloth towel in which they are wrapped, and even carbonisation may occur when they are placed in drums.

I am indebted to Prof. G. T. Byrne, of the Chemistry Department of Hong-Kong University, for the preceding information as to the chemistry of celluloid. I am also indebted to Mr. H. Leong for his help with the drawings.

A CASE OF ATHEROMA IN THE PULMONARY ARTERIES.

BY G. ARBOUR STEPHENS, M.D., B.S., B.SC. LOND.,
CONSULTING CARDIOLOGIST, KING EDWARD VII. WELSH NATIONAL MEMORIAL ASSOCIATION; CONSULTING PHYSICIAN TO CARDIGAN AND DISTRICT MEMORIAL HOSPITAL.

Ali Baba, aged 51, a native of the Malay Peninsula, who had worked for several years as a ship's cook, died on Nov. 15th from œdema and cardiac failure.

History.—He was first admitted in 1923, complaining of cough and shortness of breath, and was treated for bronchial asthma. After that time he has been in and out of the wards very frequently, complaining of chest, stomach, or head. The last admission was nine months ago, when his chief trouble was shortness of breath. He complained of poor nights on account of the breathing being more difficult than in the daytime, and nearly always had a feeling of oppression over the left chest, and one of considerable discomfort over the splenic area. On examination the breath sounds were weak, but without râles or rhonchi. There was no hæmoptysis or expectoration. The heart seemed slightly enlarged; the heart sounds were weak and there was no murmur. The weakness of the heart sounds is extraordinary in view of the tremendous development of the ventricular muscles discovered at autopsy. If the muscles of the heart cause the heart sounds, they ought in this case to have been exceedingly well marked!

The pulse was always regular, but he was more or less cyanosed. Abdominal examination did not reveal anything abnormal, and the spleen could not be felt. The Wassermann reaction was negative, and the blood pressures were systolic 170, and basic 70 (normal by my method being 150/50).

The diagnosis was extremely vague, for both signs and symptoms were not characteristic of any special disorder, but it was thought that a tumour in the region of the heart might be responsible for the trouble. Treatment was mainly symptomatic, except that parathyroid extract was given to relieve the raised basic pressure, and for a time he was more comfortable.

Post-mortem examination.—Externally there was a considerable amount of œdema of legs and scrotum, and a certain amount of cyanosis in addition to his dusky hue. There were no pleural adhesions, and only a small quantity of fluid in the pleural cavity. The negative pressure had disappeared from the pericardial cavity, and no excess of fluid was present.

The heart was considerably enlarged owing to hypertrophy of both the right and left ventricular walls, the former being ¾ inch thick and the latter 1 inch. Both walls were firm and dark red in colour, and only the tricuspid valve was affected, being considerably thickened. The trabeculæ carneæ and papillary muscles of the right ventricle were very well developed. There was a fair amount of atheromatous degeneration of the aorta extending to the upper half of the thoracic part, but not much pitting or calcareous degeneration.

The upper portions of both lungs showed a certain amount of emphysema, whilst the lower portions were congested and slightly œdematous. On section the lungs were tough and fibrous, but the most striking feature was the prominent way the cut ends of the dilated atheromatous intrapulmonary arteries stood out. These arteries were considerably dilated, and on slitting were found to have developed a large amount of atheromatous tissue in the form of yellow plaques.

The spleen was contracted and its cortex markedly wrinkled; its cut surface was congested, and the organ was firm and tough. The kidneys were fairly healthy, although there had been periodical appearances of albumin in the urine.

These cases are not common, as Dr. D. C. Hare and Dr. J. M. Ross have pointed out in their interesting survey (THE LANCET, 1929, ii., 806). They drew attention to the increase of blood pressure in the lesser or pulmonary circulation, a fact which seems to deserve attention as showing that the basic pressure varies in the several parts of the body.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE.

SECTIONS OF NEUROLOGY AND SURGERY.

AT a joint meeting of these sections, held on Dec. 2nd, the chair being taken by the President of the Section of Surgery, Mr. C. H. FAGGE, a discussion on the diagnosis and treatment of

Acute Head Injuries

was opened by Dr. GEORGE RIDDOCH. Everyone would agree, he said, that injury to the skull was unimportant compared with intracranial complications. Contusion was the most common injury. Concussion had been defined as a condition of widespread paralysis of the functions of the brain coming on after a blow and tending to recover spontaneously. The theory of cerebral anæmia probably explained it best. Sometimes complicated movements, such as playing football, might be carried out after the injury without any memory afterwards. If breathing were arrested—presumably from bulbar anæmia—artificial respiration might keep the patient alive. A blow on the occiput was more likely to produce bulbar concussion than a blow on the vault. The three essential diagnostic features were the absolutely instantaneous onset, the paralytic symptoms, and the tendency to spontaneous recovery. It was doubtful whether any save very mild cases recovered without some organic damage to the brain.

The only essential difference between contusion and laceration was the degree of hæmorrhage. Local contusion might accompany slight concussion, but severe concussion was probably always accompanied by multiple contusions, which prolonged the period of symptoms. The slow recovery might be due partly to œdema and partly to neural inhibition. An abnormal state of health might persist for a considerable time, as manifested by symptoms at one time regarded as neurotic. Headaches might be due to high intracranial tension; these were "bursting" and brought on by emotional disturbance, lying down for long periods, reading, and bright lights. The cause was probably œdema, and there was a high tension of cerebro-spinal fluid on lumbar puncture. Or headache, in a small number of cases, might be due to hypotension, disappearing when the patient lay down, associated with low cerebro-spinal tension. Possibly the choroid plexuses had been damaged and produced cerebro-spinal fluid less rapidly than normal.

The later symptoms included headache, giddiness, minor mental disorders, insomnia, and irritability. Gross mental disorder was uncommon, but was different from the common minor mental disturbances in degree only. There were often no demonstrable physical signs, but these were commoner than was supposed; pupil changes or alteration of the senses of smell and hearing might well be missed if not carefully sought. Other ocular signs might be present, especially in the early stages. Parkinsonism was rare, but interesting. The presence of convulsions was no indication that later there would be fits. Cerebral damage was often only a precipitating cause in epileptic subjects.

For treatment the surgeon and neurologist should combine, but surgery played little part in early treatment. The patient should rest for a week or ten days, but this might not always be possible. When consciousness had returned lumbar puncture was advisable, to ascertain the pressure and see if there was blood in the fluid. If pressure was high the patient should sit up; if normal, the head and shoulders might be raised. Intracranial pressure could be lowered by posture, drainage by lumbar puncture, dehydration by hypertonic solutions, and decompression. Dr. Riddoch thought dehydration safer than puncture, but rectal injections should not be repeated more than twice daily. Magnesium sulphate was twice as effective as sodium chloride for this route. Dehydration had superseded decompression except when tension was due to bleeding. Intracranial pressure might be raised by the recumbent position and by hypotonic intravenous injections.

Morphia should not be used; bromide and chloral were safer. Complete rest must be insisted on for three weeks in moderate cases where there were some symptoms of contusion. Activity should be carefully regulated during three or four weeks of convalescence, as neuroses were apt to sprout.

THE HISTOLOGICAL PICTURE.

Mr. **GEOFFREY JEFFERSON** declared that in all head injuries serious enough to call for treatment in their acute stage there was a fundamental, histological, state of contusion, in which compression might or might not be present; on top of this state there were epiphenomena, especially gross hæmorrhage, meningitis, and palsies; and that any patient admitted unconscious might be assumed to have widespread neural damage. The exact nature of concussion was a futile subject of debate. It was certain that patients who remained stuporous after a head injury had suffered contusion—a general contusion of the whole brain. This was accompanied by punctate hæmorrhages in some degree—though not so widespread as was often supposed; they were usually limited to the poles and the neighbourhood of the injury. High-power objectives showed marked œdema and blood-cells in the perivascular sheaths, which were often packed with blood. This blood had come from within the vessels by actual rupture. Concussion might play a part in this rupture by compression of the intracerebral and the intraventricular cerebro-spinal fluid. Mr. Jefferson had never been able to find signs of forcing of fluid into the bulb. If the patient did not recover consciousness in two or three hours it seemed that he must be compressed, but that this was not so was shown by the facts that cerebro-spinal fluid pressure might be low and that the effects of dehydration were not always good in stupor. In brain tumours, where compression could not be denied, the recovery on removal of œdema was dramatic; such a result was seldom seen in head injury, because then œdema was not the only cause. Yet the histological pictures of œdema were so striking that hypertonic solutions probably gave the best results; they were undoubtedly valuable, but should not be used unless the cerebro-spinal pressure were known.

Gross intracranial middle meningeal hæmorrhage was not nearly so frequent or important as was commonly believed. Subdural venous bleeding was commoner than extradural. Much more dangerous was acute subdural hæmorrhage, which could cause death as rapidly as bleeding from the middle meningeal.

A SERIES OF CASES.

Dr. **RITCHIE RUSSELL** described a series of cases investigated on a uniform plan in Edinburgh. Unconsciousness had lasted less than an hour in 80, one to 24 hours in 57, and over 24 hours in 47, while 16 had died. The higher functions of self-consciousness and control were the last to recover after a head injury. Retrograde amnesia lasted for varying periods, being longer in the severe cases, though even in these it was sometimes very short. The plantar reflex was not uncommonly extensor in the acute stage of severe cases. The neck muscles were often rigid. The cerebro-spinal fluid tension had been measured in 67 cases and the red cell count had been found to give an indication of the degree of hæmorrhage. Contre-coup injury was mainly due to the brain being torn from its membranes by it own momentum or inertia, the subarachnoid strands being torn and subarachnoid bleeding set up. In many cases the mental state was normal with a high pressure or comatose with a moderate pressure; headache usually accompanied high pressure, but had little relationship to the amount of blood in the fluid. Red and white cell count and protein content fell together to normal, the curve approximating to a straight line, unless there was a meningitis to cause fluctuation of the white cell count. Hyperglycæmia was present in the early days, and the sugar content of the cerebro-spinal fluid fell with the onset of meningitis.

The stage of cerebral irritation might be regarded as a stage in the recovery of consciousness. A certain increase of intracranial pressure was necessary to recovery; it should not be lowered unless excessive. It was important to control restlessness, and for this morphia could be given if the patient were allowed to recover for observation after each dose.

Mr. **J. PATERSON ROSS** mentioned three problems: the subdural hæmatoma; a local brain lesion with a low cerebro-spinal fluid pressure; and operation for depressed fracture. He stressed his difficulty in recognising the atypical subacute subdural hæmatoma, and described two cases. The condition was commoner than was believed and should not be forgotten. Intracranial hæmorrhage was the most natural diagnosis of paralysis after head injury, but had been ruled out in a case which Mr. Ross described, because the cerebro-spinal fluid pressure had been low. The boy had improved without operation; presumably the lesion had been laceration by contre-coup. Depressed fracture certainly called for operation when there was a penetrating wound but not always in other cases. Operation was not an essential prophylaxis against epilepsy. The dura was usually left intact if undamaged, but it was improbable that mere elevation of the bone would benefit generalised contusion.

DISCUSSION.

The **PRESIDENT** thought that the stressing of cerebral rather than cranial injury was a great advance in teaching. He had understood that lumbar puncture was not without danger and asked if there were any contra-indications. He could supply several cases of depressed fracture treated conservatively, with uniformly good results.

Mr. **JULIAN TAYLOR** asked what "commotion" was, if Mr. Ritchie Russell's theory be accepted, and quoted a case where œdema and cerebral irritation had disappeared after decompression. Subdural hæmorrhage was best diagnosed by boring on either side of the falx and seeing what came out. Treatment was very difficult; the larger the lesion and the more slowly it grew, the greater the urgency of operation. The second attack of coma might kill the patient. In acute cases a waiting attitude might be adopted. Patients with subdural hæmorrhage were usually rather ill after operation, and might show cerebral irritation. The bone flap might be lifted by œdema.

Mr. **Donald Armour** asked what was the underlying basis of photophobia after head injury, when it was an isolated symptom, and referred to two cases.

Dr. **C. P. Symonds** pleaded for a uniform terminology for the clinical states. Surgeons retained the term "cerebral irritation"; which was also called "cerebral contusion," traumatic stupor, and traumatic delirium. A clinical was better than a pathological label, as little was really known of the pathology. A careful observation would convince anyone that increased intracranial pressure, as seen in tumour, for instance, was different from traumatic stupor; the motor restlessness and delirium were not seen. The basis of traumatic stupor, if not pressure, must be some direct damage to the neural tissues. The neuropathologists should investigate the histology of these cases in greater detail. Very widespread changes in cells and myelin had been described and might well account for the clinical picture. Treatment, in this case, would go back to the time-honoured rest and sedatives, notably morphine.

Dr. **Russell Brain** said that hypertonic solutions lowered intracranial pressure in several ways; by lowering production and increasing absorption. Mr. Jefferson's sections had shown the deficient absorption in the distended spaces. It seemed doubtful whether it was wise to try to promote absorption by damaged channels and so increase the strain on them.

REPLY.

Dr. **Russell** said he had not the least idea what "commotion" was, but suggested that loss of consciousness was due to a jar, possibly a molecular damage.

Mr. **Jefferson** said that the withdrawal of fluid by lumbar puncture from a deeply stuporous and cyanosed patient was likely to be disastrous, unless the pressure were known. He described a case of extradural hæmorrhage associated with a low cerebrospinal fluid pressure; but the patient had not at once improved after operation because there was in addition an underlying contusion of the brain.

Dr. **Riddoch** observed that our knowledge of head injuries was even now imperfect. Vascular causes by no means formed so important an explanation of clinical phenomena as had formerly been supposed. There was actual organic structural change to the nervous tissue itself. The clinical characteristics of the headache after the first stage was over were important diagnostically. He thought irritability would have been present in Mr. Armour's cases of photophobia.

SECTION OF ORTHOPÆDICS.

At a meeting of this section on Dec. 1st, with Mr. **Harry Platt**, the President, in the chair, a paper on the

Effect of Wearing High Heels

was read by Mr. **P. B. Roth**. He had found it, he said, a difficult subject to investigate, because it was surrounded by prejudice. He regarded as "high" a heel which measured 2 in. or more from the ground to the top of the heel. Probably more than two-thirds of the civilised women of the world wore high-heeled shoes. A very large firm of manufacturers gave the following proportions of high and low heels: 2¼ to 2½ in., 23 per cent.; 2 to 2⅛ in., 46 per cent.; 1⅝ to 1⅞ in., 20½ per cent.; flat—i.e., 1 to 1⅜ in.—10·2 per cent. On this basis 69 per cent. of the shoes had high heels. Asked for reasons, most women said that high heels made the feet look smaller, they looked smarter, and were fashionable. All declared them to be much more comfortable than flatter heels, especially in standing. Mr. Roth set out to find an explanation for this universal declaration of comfort. Objectors said that high-heeled shoes projected the weight of the body on to the foot in such a way as to force the foot into the toe or front of the shoe, causing hallux valgus, bunions, hammer-toes, corns, and callosities; further allegations were that the high heels caused stooping, round shoulders, scoliosis, and visceroptosis. Mr. Roth's investigation included an examination of the mechanics of the foot, inspection of the skeleton, radiography of the foot, inquiry from wearers, and observation of wearers.

The body-weight was, he said, carried down the tibia to the astragalus, and so distributed to the foot. With the tibia vertical, as in standing, two-thirds of the weight passed into the os calcis, a third into the metatarsal bones; this could be proved in a simple experiment with the standard weighing machine. Examining laterally by means of X rays the standing foot, it was seen that the bones took the form of an arch; they touched the ground only at two points—at the heads of the metatarsal bones in front, and at the posterior end of the os calcis behind. They were kept in this position by ligaments and muscles, and the weight of the body was continually pressing down on the arch, tending to flatten it out; consequently these ligaments had to withstand considerable strain, though this was not obtrusive except on long-continued standing and walking, or on resuming walking and standing after an exhausting illness. When a high heel was placed under the foot the horizontal position of the os calcis had entirely changed its manner of transmitting the body-weight to the ground, for it now did so throughout its whole under surface, instead of by its posterior extremity only. The os calcis was receiving support through its centre. Wearers of high-heeled shoes, when asked, all said the pain they felt when first putting them on, before becoming accustomed to them, was to the front of the under part of the heel. The impinging of the weight on the whole extent of the os calcis must effect a great saving of ligamentous and muscular strain; hence, possibly, the universal statement that high-heeled shoes gave more comfort than those with low heels. The movement backwards of the tibia had the effect of transferring its weight further back, so that one-third of the weight of the body was still distributed forward to the metatarsals, and two-thirds of it backwards to the os calcis. When a shoe with a very high heel—i.e., 3¼ in.—was worn, the os calcis became tilted down in front, the tibia having moved backwards on the astragalus almost to its posterior limit, and it was still placed vertically. The same proportion of weight still went into the heel and was being distributed over the whole under surface of the os calcis. He could give no credence to the idea that a high heel caused alterations in the spine and abdominal viscera, for if the tibia remained vertical, whatever the height of the heel, anything above the tibia would not be affected.

With regard to the effect of the high heel when walking, he had to rely on what was stated by a very large number of women, checked by what was learned in regard to the standing foot. For a heel of no more than moderate height—i.e., about 2 in.—these shoes were more comfortable than flatter heels, provided the ground was fairly smooth; but if the ground was irregular, or fairly soft, it was better to have a somewhat lower heel. In a women's walking race to Brighton from London a few years ago the winner wore her ordinary high-heeled shoes.

In conclusion, Mr. Roth said he had not been able to find evidence of any harm resulting from high-heeled shoes; the supposed sequelæ of such high heels—stoop, scoliosis, visceroptosis—were baseless, for children and men had them equally. A more likely cause was badly fitting footwear. Mr. W. H. Trethowan had said that the most important measure in giving relief in cases of weak or overstrained feet was to raise, not lower, the height of the heels worn. Also, a high heel was often used in cases of shortened limb, and in cases of shortened tendo Achillis a high heel was preferable to a tendon-lengthening operation. A high heel also relieved flat-foot. A 2 in. heel was, he declared, a valuable mechanical contrivance, and there was no reason, other than custom, to restrict it to one sex.

Miss M. S. **Jevons** expressed her agreement with Mr. Roth's contentions; the only objection she could see to the high heel was when patients bought cheap shoes, in which the heel was so slanting downwards that, though the os calcis had been made horizontal, the whole foot slipped forward. This was likely to produce hammer-toe and corns.

Mr. **Ralph Thompson** said some people, chiefly men, walked with a tilting forward of the body generally, with an increased extension of the foot as it was brought forward. He had seen it in only two women. He agreed with Mr. Roth.

Dislocation of the Atlas.

Mr. R. **Watson Jones** read a paper on Pathological Dislocations of the Atlas and their Treatment. It was written, he said, as a result of two cases in his own practice. It was now 101 years since Sir Charles Bell described a man with a deep ulcer on the back of the pharynx who had a dislocation of the atlas because the ulcer had destroyed the transverse ligament of the atlas. Fourteen other cases of the kind had since been reported. The condition was almost restricted to the first decade of life; only three of the patients were over 11 years old, and from 7 to 11 was the usual age. No traumatic factor could be determined; the dislocation took place quite spontaneously after a normal movement of the head. In one of his two cases it occurred before an operation for acute mastoid disease; in the other the child was playing by himself in bed. The predisposing factor was an inflammatory lesion in the upper region of the neck, but any infection which was accompanied by hyperæmia in the region of the base of the skull might cause the dislocation: tonsillitis, pharyngitis, middle-ear disease, mastoid disease, inflamed cervical glands. The particular kind of organism present did not seem to be material. When a child had this condition, head movements were avoided, and the head was carried tilted towards one shoulder; it was the posture found in ordinary torticollis, but there was no shortening nor spasm of the sternomastoid. Any attempt to move the head was strongly resisted. There was no tenderness over the cervical vertebræ, but percussion caused pain. In none of the cases which survived was there evidence of an irritative lesion of the cord, but the cord was lying in a very restricted space between the odontoid and the back of the foramen magnum. The anterior arch of the atlas might show decalcification. Treatment was by recumbency and head extension; in many cases prolonged fixation had been necessary, even up to six months.

Mr. **George Perkins** spoke of a patient in a hospital, a youth of 20, with a pathological dislocation of the atlas. He had an attack of supposed influenza, and while lying in bed his neck was stiff. After recovering from the influenza he could not use his right hand well, then there was disability in his left hand. A month or two later he was unsteady on his legs, and finally was unable to walk at all. Radiograms of the cervical spine showed complete dislocation of the atlas on the odontoid process; there seemed to be no decalcification of the atlas. He had now been treated for a month by head traction and was recovering in both legs and arms.

Mr. H. J. **Seddon** referred to a patient with Still's disease in 1926 who had a spontaneous dislocation between the axis and atlas, and later had paralysis of all four limbs. He was treated by traction, and completely recovered with heteroplegia. That dislocation was certainly spontaneous. A radiogram taken early this year showed ankylosis between the axis and atlas.

Arthroplasty of Elbow-joint.

Mr. R. C. **Elmslie** gave a cinematograph demonstration of an operation performed by him for this condition. The patient, a young woman, had an operation on the elbow eight years before on account of tuberculous disease, and as a result she had ankylosis of the right wrist and forearm, with consequent serious disability of her right hand and greatly restricted movement in the right shoulder. The case was therefore one of polyarticular arthritis. The operation consisted of exposure of the elbow by a posterior incision, splitting of the triceps into a superficial and a deep half to facilitate subsequent suture, and stripping of the joint at the inner and outer sides. The lower end of the humerus was divided transversely at the level of the epicondyles, and the extremity was bevelled off to a fine edge. The ulna was then divided by a saw-cut parallel with the surface of the olecranon, and a cross-cut parallel with the greater sigmoid cavity, thus leaving part of the olecranon intact. The lower end of the humerus was covered with a fascial flap, and then the muscles were sutured. The remarkable range of movement of the arm after the operation, with a 4 lb. weight in the hand, which the moving picture showed, was confirmed by demonstration of the patient.

Cerebral Diplegia.

Dr. **Redvers Ironside** read a paper, supplemented by a cinematograph demonstration, on Cerebral Diplegia: Its Classification and Prognosis. He said that symmetrical diplegias formed the largest part of infantile palsies. The brain and spinal cord of these cases had apparently been normal, as viewed by the naked eye. The commonest condition found at autopsy on these cases was atrophic sclerosis, the convolutions being shrunken, with evidence of neuroblastic death and secondary gliosis. The tracts might be poorly developed; the cells of the bulb and mid-brain might be affected. The distribution might be scattered, and then the changes predominated in the prefrontal lobes or the temporal lobes, producing mental defect, even blindness. In its diffuse form, atrophic sclerosis produced the condition known as "walnut brain." Dr. Ironside divided the cases into (1) cortical types (symmetrical); (2) striatal types (symmetrical); (3) cortico-striate types (sometimes symmetrical); (4) cerebro-cerebellar types. Transitional cases might also be seen. He had not found any dependable relationship between the physical failure and the mental failure. These children varied greatly in the degree of persistence with which they pursued anything. The prognosis in any given case depended on the physiological residue of power which a careful assessment revealed. Orthopædic treatment was important, and he advocated a closer discussion over these cases between the neurologist and the orthopædic surgeon.

BRITISH INSTITUTE OF RADIOLOGY

INCORPORATED WITH THE RONTGEN SOCIETY.

The Annual Congress of this Institute was held from Dec. 2nd to 4th, at the Central Hall, Westminster, under the Presidency of Dr. A. E. Barclay. It was officially opened by Lord Rutherford, who spoke on the origin of the gamma rays, which were, he now thought, derived from the motions of alpha particles in the nucleus and had nothing to do with the beta rays.

A cinematograph film by Prof. F. Haenisch (Hamburg) followed, showing experiments on the inflammability of films.

Sir James Jeans then delivered the fourteenth Silvanus Thompson Memorial Lecture on

What is Radiation ?

He described radiation as a shower of discrete photons —or bullets—each carrying energy and momentum. The theory of relativity had brought the fundamental corollary that all energy had mass associated with it. A disturbance of a single atom produced one complete photon and one only, and the loss of mass of the atom was exactly equal to the mass of the resulting photon. When the disturbance caused a rearrangement of the outermost layers of an atom only, the resulting change of mass was only a few millionths of the mass of one electron and the photon had the wave-length of light. If the disturbance caused rearrangement of the inner electrons of the atom the result was X radiation, and the photon had a mass about one-ten-thousandth of that of an electron. The photons of the most penetrating radiation known had a mass about equal to that of an atom of helium. Photons might be looked on as bits of energy which had broken loose from the electric charges of the universe. They were not simply bullets, but had also wave-like properties. Their motion was unhampered by the retarding effect of an electric charge that caused electrons and protons to move always at a speed less than that of light. The sun distributed photons through space at the rate of over four billion tons a second, but the electric light companies charged £17,000,000 an ounce for them. Were it possible to annihilate matter, an ounce of it could be turned into an ounce of photons.

The second session was devoted to technical physical papers on advances in X ray engineering, economy and quality in radiology, the X ray emulsion, the power factor in radiography, and experimental radiography with gamma rays. Dr. R. G. Canti's film showing the effects of radium on living tissues cultivated in vitro was shown.

The Twelfth Mackenzie Davidson Memorial Lecture was delivered by Prof. Hans Holfelder (Frankfort-on-Maine), who took as his subject a comparison of

Medical, Surgical, and Radiological Conceptions

in relation to the treatment of disease. Surgical conceptions, he said, were almost entirely topographical and anatomical, rather than physiological and biological. Surgical prognosis was as definite as prognosis could be, and depended largely on the amount of radical treatment that was possible. Human life depended on the surgeon's control of bleeding and sepsis, and he operated as an artist, taking great responsibility and leaving relatively little to the organism itself. Surgeons looked for immediate results, and found it hard to understand why the radiologist must wait for weeks before deciding whether a growth would yield to his treatment. Close coöperation between surgeon and radiologist had greatly improved late results. Each must appreciate the other's position. The surgeon was a great artist, whom no one might contradict, and was the hero of the hospital.

Quite different was the physician, who had to study the diseased organism as a whole and every single organ and function, often by prolonged and complex methods. His work was much more contemplative, comparative, and detailed. He was the great sceptical observer, always realising how difficult it was to penetrate the veil that covered the diseased organism. He could never be satisfied with a symptomatic diagnosis. Disease had been described as obstruction in the gear-box, and this well expressed the complicated mechanisms involved. He was bound to take a somewhat negativistic attitude towards therapeutic results. The marvellous ability of the organism to recover without treatment and the absence of any effect from strong drugs had led to a therapeutic nihilism, which had been only slightly shaken by modern chemotherapy. Most remedies were altered or diluted by the body fluids before they reached their object. Therefore the physician realised how small a power he had to modify disease and must be less the man of quick activity than the man of critical judgment.

Radiological diagnosis, like surgery, went along topographical lines in many ways, but the function of the gastro-intestinal canal had been an early subject of radiographic study, which combined the powers of medicine and surgery and answered many special clinical questions. Modern radiographic diagnosis was a very scientific and artistic proceeding, demanding a thorough acquaintance with technique and with medicine. Radiotherapy had at first followed surgery very closely, but had only triumphed when it had learnt to differentiate the surgical points of special value to itself. It was by no means confined to malignant disease, though that was indeed its centre. The earlier methods had been very similar to surgical operations, with the aim of complete destruction, and the radiologist had been rather a physicist or technician. The modern radiologist mastered his Rontgen dose much as the surgeon mastered his knife, and would no more leave the control of his work to a technician or assistant than a surgeon would hand his knife to the nurse during an operation. Curiously enough, though, he could well leave the actual treatment to a technician ; his great skill and care were required while the field was being localised, before the actual treatment dose was started. His work demanded much time and devotion. Radiotherapy combined the topographical ideas of surgery and a complex technique into its own new method, and biological research and clinical observation had shown that the single "surgical" dose was less efficient than protracted dosage. His prognosis could not be as definite as that of surgery, as the result depended on the capacity of the organism to take advantage of the chance given it. Great clinical and radiotherapeutic experience was necessary for modern radiotherapy; it had become an essentially clinical method. The parents should realise that their child had now grown to manhood and must be given autonomy; full control of the patient.

At the third session, Sir Thomas Horder opened a discussion on the

Radiation Treatment of Leukæmia.

He urged the importance of coöperation between physicians and radiologists. The essential pathology of leukæmia still eluded workers; the two chief theories were the infective and the neoplastic. It was unhelpful to view it as a primary anæmia. He thought radiation acted indirectly rather than directly, but its mechanism was not really known. Its action was symptomatic rather than curative. Life was not greatly prolonged, but the patient's comfort could be greatly enhanced by skilful and well-planned radiation. Even if he felt quite well he remained potentially leukæmic. Its latency was one of the striking features about leukæmia. The aim of treatment was not a normal white cell count; the hæmoglobin and red cell count should be restored to normal if possible, but the important thing was the general condition. The leukæmic were not immune from the aplastic anæmia produced by radiation in the healthy. Re-treatment should not be given merely because the white cell count had risen, but only for general relapse. Recumbency had a remarkable effect on the blood count, and general therapeutic measures and rest are essential. The indication for re-treatment was a definite subsidence in the general state. On the whole, arsenic and similar drugs should be suspended during radiation treatment, and restored afterwards. Phenylhydrazine, benzol, and naphthaline tetrachloride were potent drugs and many patients were peculiarly susceptible to them. The danger signals in radiation treatment were pyrexia, myocardial weakness, renal insufficiency, and hæmorrhages. Acute lymphatic leukæmia was not suitable for radiation, unless there was some special pressure trouble; nor should radiation be given during acute phases of the chronic disease, or if Addisonian anæmia complicated the picture. Gout was a common complication, not related to radiation. A hard spleen was a great nuisance. When present thoracic radiation might be useful. Glands should be irradiated in any case for the patient's sake. This was a field for clinical research, and controls would be very valuable.

Dr. N. S. Finzi described the effect of radiation on cases treated by him. He thought that most people under-dosed leukæmia, because it was quite easy to kill with X rays and because much too much attention was given to the white count and too little to the red count. After a typical spleen dose (F.D. 24 c.cm; field 20 cm. diameter; Al. 5 mm.; 7 H = 378r = 85 per cent. of an erythema dose) the white cells fell rapidly, showed a secondary rise, another fall, and another rise. The red cells, on the other hand, after a small initial fall, rose fairly steadily, and the hæmoglobin with them. Radon solution had been tried in three myelocytic cases, with indifferent success.

The survival, of acute and chronic myelocytic cases together, showed an average of over a year; three had lived over three years and three over four years. The lymphatic type showed a survival from four days to five years, with an average of 18 months. The results seemed to be better in the myelocytic type. In the terminal stages patients might fail to respond at all to radiation. Even moribund cases were included in the statistics. Treatment of long bones had been discarded, as the effect of radiating the spleen was so much better. Improvement on radiating the lower chest was slower than that following treatment of the spleen. In the lymphatic type radiation would reduce the glands without greatly affecting the blood picture; again, treatment to the spleen was better. Great care must be taken not to give too big a dose to the glands. Irradiation of the whole trunk had given good results abroad.

The best results were obtained with large final doses and small initial ones. Heavier filtration and higher voltages seemed likely to give better results. Dosage should be controlled by frequent blood counts, the red count and the hæmoglobin being the determining factors.

Dr. A. Piney described work based on the principle of treating as mildly as was compatible with obtaining results. Irradiation of the long bones and of the spleen had been used, and the results had been satisfactory. The full effect of radiation was not obtained right away, but the cell counts of the peripheral blood were not true indications of the state of the marrow. It was safe to reduce the white cells to approximately normal levels provided the decrease was mainly in the abnormal cells and not in the normal cells. In aleukæmic phases and cases the white cell count could be raised by repeated injections of sodium nucleinate.

Dr. J. H. Douglas Webster mentioned the great differences of pathological opinion on leukæmia. The acute cases were hopeless. A good deal of the effect of radiation was an indirect one; satisfactory results had been obtained by transfusion of irradiated blood and by applying radium to the feet. Possibly the effect was hastening the maturation of immature forms. Immature forms could not migrate, so they collected in the blood. Normal leucocytes were said to be found in the saliva in great numbers after treatment. The metabolic changes were interesting and had not been greatly studied. Dr. Webster described his results in 50 cases, ranging in age from 8 to 72. He thought the myelocytic type showed the most dramatic effects but that the end-results were better in the lymphatic type. The effect on the blood might continue for months after one course of radium. Radiation should be held in reserve until the patient began to go downhill. Radon had also been used, in tubes over the spleen. There seemed to be no great difference in the effects of the various X ray methods.

Sir Thomas Horder, in reply, emphasised the importance of being sure of the diagnosis before estimating results. The blood picture was not the disease but the indication of some disease much further back. A patient would not always respond to leucocytic stimulants, and it was therefore wise to be guided by the blood picture until a more reliable criterion was found.

Lipiodol in the Diagnosis of Intrathoracic Disease.

A discussion on this subject was opened by Dr. L. S. T. Burrell, who said that lipiodol could be introduced nasally, orally, or through the cricothyroid membrane, and described the techniques.

The chief indication for lipiodol was bronchiectasis; it should be used before any operation of any magnitude. Treatment depended largely on the extent of the bronchiectasis, which was difficult to estimate clinically. Excision was a very satisfactory treatment if the disease was localised. Lipiodol was also useful for diagnosis in cases of hæmoptysis, and had saved many bronchiectatic and other patients from the sanatorium. It was less useful in lung abscess which it did not enter. It would often suggest the diagnosis of bronchial carcinoma. In pyopneumothorax lipiodol might be used to locate a perforation, but a little pepperminted air or methylene-blue inserted with a pneumothorax apparatus gave sufficient indication of the existence of a hole. Lipiodol was, as a rule, so harmless that it could be given to the most ill patients, but in pulmonary tuberculosis it sometimes caused an exacerbation rather like that produced by tuberculin. Iodine poisoning was sometimes seen, therefore lipiodol should not be used as a routine or indiscriminately. The chief contra-indication was when no benefit was likely to result from its use.

Dr. **STANLEY MELVILLE** said that chronic cough was no longer regarded as the important ætiological factor in bronchiectasis. Hæmoptysis was very often the only symptom. The initial lesion was commonly in the bronchial wall, often an ulceration. There was as a rule extremely little fibrosis; in fact the thinness of the bronchus was often striking. A large proportion of bronchiectasis might be congenital. His bias was strongly in favour of the crico-thyroid route for lipiodol. The risk of laryngeal spasm by the nasal route was not worth running. One injection was not enough to exclude bronchial dilatation. Dr. Melville showed a number of slides of lipiodol radiological investigations.

Dr. **JAMES MAXWELL** thought that the indications for lipiodol were getting fewer every year. The oral route had the disadvantage that the introducer could not tell where the lipiodol was going while he was putting it in. With the nasal method it could be put in while the patient was being screened, but the passage of the catheter was not always easy. The great advantage of the crico-thyroid route was its certainty, but the cannula might be pushed too far or not far enough. If air did not enter the syringe easily on withdrawal of the plunger, no injection should be made. The nasal route might prove later to be the method of choice. Before undertaking to use lipiodol it was important to test for sensitiveness to iodine and cocaine by giving potassium iodide and cocaine beforehand. Some other substance could be used for iodine-sensitive patients. The amount of lipiodol used should vary according to the nature of the case, from 20 c.cm. to 40 c.cm. If a blocked bronchus was suspected 5 to 10 c.cm. was ample to show the condition with no risk of collapse of the lung. In chronic empyema with sinus, lipiodol might be valuable to show broncho-pleural fistula, and should be used as a routine.

Dr. **DUNCAN WHITE** advocated oral injection, which was simple provided that the patient would coöperate with confidence. The success of the method depended on control of the tongue. The patient was first asked to breathe with his mouth open, then with his tongue protruded, and then with his tongue held by the operator. Lipiodol should be used in all cases of hæmoptysis, and to define the site of stenosis in carcinoma of the lung with atelectasis.

Dr. **W. J. FENTON** described the technique of the oral method, which, he said, depended entirely on the anæsthesia, which must be induced by a spray used together with a laryngeal mirror. Patients were quite contented. An assistant must hold the tongue. Dr. Fenton showed his electric laryngeal mirror which dispensed with a head-mirror. Some form of pressure was needed, and to avoid the difficulty of working a bellows he had designed an apparatus for utilising compressed air. He preferred a metal syringe because glass broke so readily. The injection could be watched the whole time by this method. It was easier if the patient was recumbent. The quantity of lipiodol should be small; 5 c.cm. was sufficient in a good patient lying down. Mere physical or radiological examination was insufficient to show bronchial dilatation. Lipiodol remained a little time in the trachea and there was no need to rush the patient to the examination couch. He objected to the nasal route because it was a blind method. After crico-thyroid injection patients complained of difficulty in swallowing for 24 hours, and there might be cellulitis of the neck, in unskilled hands.

Dr. **J. V. SPARKS** showed slides illustrating lipiodol injections and their advantage in diagnosis.

Dr. **PETER KERLEY** said that more than half of his cases of bronchiectasis in children lacked physical signs, and would have been missed but for lipiodol. It was better to do too many than too few lipiodol investigations. These children had been clinically diagnosed as chronic bronchitis or post-pneumonic fibrosis. There were three points in the differential diagnosis: (1) there was invariably persistent increased translucency due to compensatory emphysema in infantile bronchiectasis; (2) the diaphragmatic movements were usually better than those of post-pneumonic fibrosis and chronic bronchitis; (3) when a lobe was collapsed there was invariably a congenital basis for the bronchiectasis. The lobe was collapsed before it was bronchiectatic.

Dr. **A. ORLEY** justified the nasal method. He said laryngeal spasm was not so bad as Dr. Melville thought. The method was not blind, as the patient was put on the X ray table as soon as the catheter was introduced. Pictures should be taken as soon as possible to get a good outline of the bronchi, and every step of the procedure should be watched.

Future of the British Institute.

Dr. **A. E. BARCLAY**, in his presidential address, traced the history of the Institute and the increasing importance of its medical side. The object of the Institute should be, he said, to attract all users of radiations, but it was almost impossible to make a programme suitable for all. Sectional meetings offered a solution which had not, in fact, been favoured. Medical radiology in this country was crying out for opportunity. The Institute was now well equipped to teach the technical side of radiology, and its recognition as a training school was very important. Meanwhile it was hard to satisfy the needs of the physicist members; perhaps the Institute could specialise in one section of radiological physics. Dr. Barclay recommended the foundation of autonomous sections without any change in the constitution.

BETHLEM HOSPITAL: THE QUEEN'S PORTRAIT.—To commemorate the opening of the new Bethlem Hospital by the Queen, the Lord Mayor of London last week at a meeting of the Court unveiled a portrait of Her Majesty which has been presented by Lord Wakefield.

REVIEWS AND NOTICES OF BOOKS

The Nature and Treatment of Stammering.

By E. G. BOOME, M.B., Ch.B., D.P.H., Divisional Medical Officer, L.C.C.; and M. A. RICHARDSON, Senior Assistant, L.C.C. Stammering Courses for Children. London: Methuen and Co. 1931. Pp. 135. 3*s.* 6*d.*

IN the past stammering has been regarded as a separate entity, and has been treated purely from the vocal point of view, and all sorts of efforts have been made to re-educate speech as such. Where successes were achieved it appears to have been little understood that some other change was achieved in the child apart from the improvement in articulation. The authors of this book have had considerable experience in dealing with this painful disability. They outline the various theories of stammering, and discuss the different causes which have been made responsible for stammering, showing that many of these alleged causes are really accompanying symptoms or, at most, are provocations. They also point out what has only recently been learnt—that the stammerer has a temperament, or rather character. The facial signs of a stammerer, his tension, excitability, his emotional make up, and, above all, his sense of inferiority and isolation are well indicated; and, what is more, the stammerer's point of view is sympathetically considered. Their analysis of cases has brought home to the authors the importance of environmental factors, particularly the influence of the home, of the parents, and of brothers and sisters. With this insight into the tragic element in the stammerer's difficulties they are able to prescribe a catholic form of treatment which shall deal with as many as possible of the ætiological factors. The importance of relaxation and of ease—amounting to indifference—in overcoming tension, spasm, and excitability is fully realised; also the fact that a patient allowed to express his difficulties experiences that relief from tension which follows the solution of mental conflict. Environmental changes are recommended where these appear to be necessary. Dr. Boome and his collaborator have provided a very useful handbook on a disorder which is not uncommon, and the treatment of which, because of its irritating character, is often insufficiently persevering.

Emergency Surgery.

Vol. II.: *Thorax, Spine, Head, Neck, Extremities.* By HAMILTON BAILEY, F.R.C.S., Surgeon, Royal Northern Hospital. Bristol: John Wright and Sons, Ltd. 1931. Pp. 415. 25*s.*

THIS volume completes a work on emergency surgery, the first part of which has already been reviewed in our columns. The whole forms a reliable guide to those surgeons beginning their practice of emergency work, and will be found useful as a book of reference to the more experienced practitioner. The author has been happy in his selection of methods, and does not perplex his readers by numerous alternative procedures. There are of course some omissions, and some of the advice offered will not commend itself to every surgeon. For instance, there is no description of a really effective operation for draining the knee-joint, and only a mere mention of Orr's treatment, whilst, on the other hand, we find a full description of the Carrel technique which few surgeons now use. Intravenous injection of hypertonic saline for increased intracranial tension, which is here recommended, is usually held to do more harm than good when the first effect passes off, at which point it should be replaced by concentrated glucose solution.

Study of this concluding volume confirms our previous impression that Mr. Hamilton Bailey has written a reliable book on a very important aspect of general surgery. We congratulate him and his publishers, who have provided excellent reproductions, on the completion of his task.

Diseases of the Skin.

Eighth edition. By RICHARD L. SUTTON, M.D., Sc.D., LL.D., F.R.S. Edin., Professor of Dermatology, University of Kansas School of Medicine. London: Henry Kimpton. 1931. In 2 volumes. Pp. 631 and 1352 respectively. 52*s.* 6*d.*

THE seventh edition of this work, which appeared in 1928, has again been revised and enlarged. The author must have an inexhaustible fund of energy, for he has kept pace with the scope and compass of modern dermatology as it increases, as he says, "by leaps and bounds." The book has become world-famous, and in America at least must rival in popularity any other text-book on the subject. By printing more concisely the publishers have managed to keep the additional pages of text down to 65, but the number of illustrations have been increased by 53. There are 1290 illustrations in all and 90 coloured plates. It is an achievement for a "one man" text-book to record so completely and gracefully the science which only a decade or two ago was regarded as of small account in medicine, and in this country at least has only recently obtained university recognition. The illustrations especially are superb, being absolutely typical of the diseases they are claimed to portray. Another outstanding feature is the bibliography; the explanatory remarks show that the author is personally familiar with a large number of the publications cited. The text is, of course, reliable and concise, and although the style is not as dramatic and virile as that favoured, *for instance*, by the *French school* of dermatologists, the reader's interest will never flag.

Die Gesamte Kosmetic.

By MARTIN GUMPERT, M.D. Berlin. Leipzig: Georg Thieme. 1931. Pp. 228. RM.14.60.

THE removal of vascular or pigmented nævi, hypertrophic scars, keloid growths, hypertrichosis, warts, and unsightly scars forms a considerable part of the dermatologist's daily routine, particularly in private practice. The technique required for these procedures demands a degree of skill which cannot always be taught in hospital out-patient departments and which few text-books do more than touch upon. This is a serious and comprehensive synopsis of cosmetic treatment. The author presupposes a sound dermatological knowledge on the part of the reader. There is also a medical or pharmacological side to the cosmetic arts, which are usually ignored by the practitioner, or despised as appertaining to the beauty parlour; this attitude is unfortunate, since it is likely to drive the patient into the hands of the charlatan. Dr. Gumpert provides a section on the principles underlying the composition of hair lotions, soaps, ointments, pastes, emulsions, powder, rouge, cosmetic lotions, hair dyes, and perfumes, and does not scorn to touch on the mysteries of singeing and the "permanent wave," which, we are informed, was invented by Ch. Nessler in London in the year 1906. An entirely new industry for the manufacture of the complicated apparatus required is the direct result of this procedure, which demands of its acolytes a high degree of skill, experience, and responsibility. The physical cosmetic methods, which embrace electrolysis, ionisation, faradisation, diathermy, the galvano-cautery, CO_2 snow, and all the various rays, including "Grenz" or Bucky rays, radium, and X rays, are dealt with in a brief but masterly manner. Warnings are numerous; and it is satisfactory to read yet again that the use of X rays in hypertrichosis is unconditionally condemned. There is included, perhaps for the first time in a scientific dermatological work, a full description, with copious diagrams, of the art known in this country as "face lifting." It includes, of course, much more than this. Congenital deficiencies of the auricle, lymphatic hypertrophy of the lips, rhinoplasty, and the remedial measures for restoring a hanging breast—all these find a place in this comprehensive survey. The treatment of adiposity is not forgotten, and a final chapter of great interest is devoted to the psychopathic problems which frequently complicate the clinical picture, and may lead to a severe form of mental depression and even to suicide.

To have successfully compressed in so short a compass the principles and details of an art which is becoming increasingly essential in modern dermatology is an achievement of which the author may well be proud.

Diagnosis of Nervous Diseases.

Seventh edition, revised. By Sir JAMES PURVES STEWART, K.C.M.G., C.B., M.D., F.R.C.P., Physician to Westminster Hospital. London: Edward Arnold and Co. 1931. Pp. 730. 35*s*.

THE latest edition of Sir James Purves Stewart's well-known and much appreciated book on nervous diagnosis is somewhat larger than its predecessors—an inevitable consequence of contemporary advances in neurological theory and art. It has often been commended for its sound scientific basis as well as for its clinical merits and judicious selection of what is essential for the student and practitioner. The fact that a seventh edition is in demand remains the best proof of its outstanding value. Opportunity has been taken to recast several of the sections and to include certain recent modifications of accepted doctrine, as well as some topics whose importance is becoming better recognised, such as postural reflexes and disorders of sleep. Clearly printed on thin opaque paper, taking the illustrations well, the volume has not become either unduly heavy or bulky, and its present format is superior to that of some former issues. It is sure to be welcomed by a widening circle of students of neurology.

Gonorrhœa in the Male and Female.

Second edition. By P. S. PELOUZE, M.D., Assistant Genito-urinary Surgeon at the University of Pennsylvania. London: W. B. Saunders Co., Ltd. 1931. Pp. 440. 24*s*.

THE first edition of this book appeared in 1928. It was reprinted four times in the next two years. and now a second revised edition has appeared. Considering the plethora of books on the subject, it will be obvious that there must be something peculiar in Dr. Pelouze's work to produce this demand. This peculiarity is the fresh outlook brought to bear on the disease, built on real experience. The text is not burdened with references. One feels that the author is writing from his own cases, that he has thought clearly on what he is doing, and that he can give good reasons for his technique. The second edition differs from the first in that it also includes the disease as it shows itself in women. Here again the same refreshing heterodoxy shows itself.

This is not a text-book for the student who has to satisfy examiners. It is essentially one for the practitioner. The specialist, too, though he may differ from the author, will find ample material to interest him. He may be led to reconsider his own treatment, or forced to give reasons to himself for his faith in it.

The Tungsten-Titanium Arc.

Studies in the Photo-activity and Therapy of the Tungsten-Titanium Arc. By J. BURDON-COOPER, M.D., B.Sc., F.R.C.S.E., D.O., F.C.S., late Lecturer, Physiological Optics, Department of Ophthalmology, University of Oxford; and ARTHUR ROBERTS, T.D., F.R.C.S.E., M.R.C.S., Major R.A.M.C. (Retd.), Consulting Aural Surgeon. Bristol: John Wright and Sons, Ltd. 1931. Pp. 85. 10*s*.

THIS work is designed to supply information on phototherapeutic treatment by light derived from a composite electrode composed of pure tungsten, titanium, and chromium, the titanium content being between 1½ and 2 per cent. and the tungsten about 98 per cent., with a small but definite addition of chromium. Photographs taken by Mr. B. D. H. Watters, M.Sc., at the Middlesex Hospital, showed[1] little or no difference between the ultra-violet emission from such an arc and that of pure tungsten, and it was hardly to be expected that the clinical results would vary to any recognisable extent. This impression is strengthened by reading the illustrative cases given in the book.

Vertebrate Zoology.

An Introduction to the Literature on Vertebrate Zoology. By CASEY A. WOOD, M.D., LL.D., Collaborator, Division of Birds, Smithsonian Institution. London: Humphrey Milford, Oxford University Press. 1931. Pp. 644. £3 3*s*.

THIS imposing volume represents a vast expenditure of labour. It is "intended to assist students of vertebrate zoology and its bibliography, as well as university and other librarians, in securing a fair knowledge of an important branch of natural science." The work is divided into three sections. The first gives a brief account of the literature of vertebrate zoology, so far as it is represented in the libraries of the McGill University, Montreal, from the earliest times to the present. The second furnishes a convenient, short-title index of the same literature arranged geographically and in chronological order. The third section, the largest, is described as a "partially annotated catalogue of the printed books, periodicals, &c.," in the zoological collections of McGill University.

The author expresses the modest hope that this work will serve as a stopgap pending the appearance of a complete study and evaluation of the whole literature of vertebrates. It is certainly an effort which all students of this subject will appreciate.

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[1] THE LANCET, 1928, ii., 278.

Arthur Conan Doyle.

By Rev. J. Lamond. London: John Murray. 1931. Pp. 310. 10*s.* 6*d.*

The volume makes an interesting addendum to Conan Doyle's own reminiscences, furnishing details in the life of a man of many sides. In some verses, which are reproduced here and which form the best of his published poems, he describes himself as soldier, priest and mystic, sceptic and thinker, and several other characters embraced within the extremes of "now a savage, now a saint." Mr. Lamond, in recording briefly the life of his subject from birth to grave, brings out the versatile capability displayed by Conan Doyle, but has been inspired chiefly by his championship of spiritualism. He appears to share Conan Doyle's own view, which he quotes, that his 30 years of literary activity, as well as his young man's agnosticism, formed a preparation for his work as a propagandist of the spiritualist movement. Mr. Lamond analyses the factors which led, in his opinion, to Conan Doyle's becoming a spiritualist, and recalls his early psychic studies. The second part of the book consists of little but a record of Doyle's interest in and work for the cause of spiritualism, and is well done as a piece of advocacy.

That Conan Doyle possessed the faculty of making all sorts and conditions of people not only admire him, but grow fond of him, emerges from these pages, and justifies the writing of the memoir.

"First Aid" to the Injured and Sick.

An Advanced Ambulance Handbook. Thirteenth edition. By F. J. Warwick and A. L. Tunstall. Edited by F. C. Nichols, *M.C.*, M.B., Ch.B., Lecturer and Examiner, St. John Ambulance Association. Bristol: John Wright and Sons, Ltd. 1931. Pp. 276. 2*s.* 6*d.*

This book has held its place as one of the best-known books on "first aid" for 30 years. The thirteenth edition contains a valuable addition in the form of a glossary of words which may not be clear to the younger first-aid student. The book is compact, well illustrated, and has an excellent index. It should fulfil admirably the needs of students of first aid.

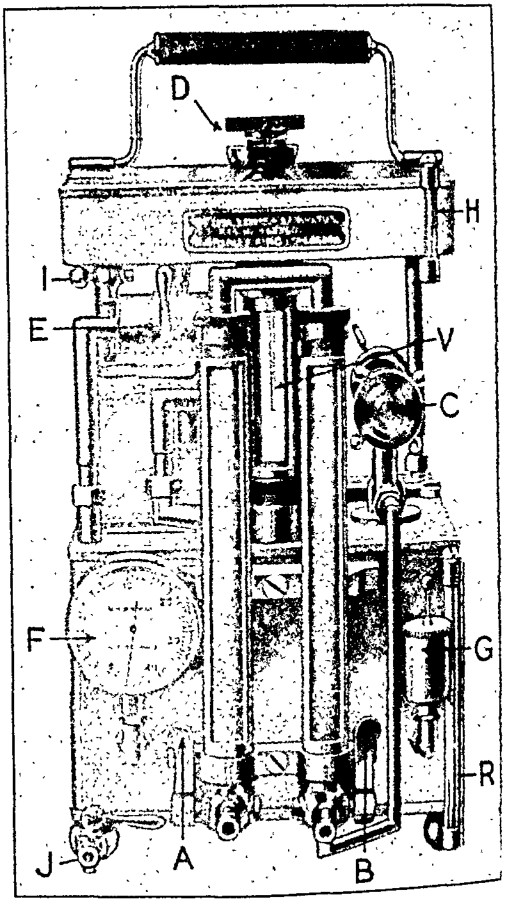
NEW INVENTIONS

APPARATUS FOR ANÆSTHESIA.

The apparatus illustrated below has been devised to provide the maximum anæsthetic equipment in the minimum of space. No claim is made to originality in principle; the machine is in fact no more than a rearrangement of that designed by Dr. Ivan Magill, with the substitution of a gravity-fed drip for the ether as used on Shipway's endotracheal apparatus.

Nitrous oxide and oxygen are led in through the flow-meters B and A respectively. The mixed gases then pass the stopcock E, where they may be made partially or wholly to bubble through chloroform in the glass bottle. Next they pass into the lower chamber of the apparatus. This consists of an inner hot-water chamber around which they are conducted in a coil before being set free into the outer gas chamber. In the outer chamber the gases meet the ether drip which is controlled at D. The ether reaches the floor of the gas chamber through a vertical tube which passes through the hot-water chamber. V is a visible ether drip. In the hot-water chamber it meets the warmed gases and is thus vaporised and carried to the exit of the apparatus at the back, where it is available for the patient.

C is a CO_2 valve of a standard sparklet pattern and delivers CO_2 through the N_2O flow-meter. For use in hospital a tap is substituted which may be connected to a large CO_2 cylinder. The ether is delivered by a gravity-drip feed from the upper chamber which is a reservoir holding one pound of ether. A glass gauge H conveniently indicates the level of ether and a tap I permits the ether to be drained off if required. F is a manometer which indicates the pressure in the outer chamber and G is a spring-loaded adjustable safety valve. The gauge R indicates the presence of fluid ether in the lower chamber. This occurs with a rapid ether drip when the water has been allowed to cool. The excess ether may be removed immediately through the tap J. Another tap allows the pressure in the lower chamber to be conducted above the surface of the ether in the reservoir so that the gravity feed is effective at all pressures. There is an angled filler for the chloroform bottle which automatically closes the bottle when swung back into place. The chloroform bottle is insulated from the heat of the water by an asbestos mat.



The overall measurements are, front to back 9 in., breadth 6½ in., height 11 in. The apparatus is made by Messrs. A. Charles King, Ltd.

St. George's Hospital. Ivor Lewis, M.R.C.S. Eng.

THE LANCET.

LONDON: SATURDAY, DECEMBER 12, 1931.

THE SPREAD OF POLIOMYELITIS.

PROBABLY poliomyelitis is usually transmitted by spray or droplets from the mouth or nose of infected subjects—cases or carriers. Some people put forward a strange modification of this hypothesis, and maintain that only carriers can transmit the virus, and that the clinical case of poliomyelitis is not infectious. The holders of this theory can never be proved wrong, because, unless a patient has never been in contact with any human beings except cases of poliomyelitis—which is absurd—anyone who has been near him may conceivably have been a carrier. Although it is impossible in any disease such as poliomyelitis, where as a rule the carriers and clinically unrecognisable cases form the vast majority of total infections, to prove with mathematical certainty in any specific instance that one person has directly infected another, yet enough evidence has now accumulated to satisfy most minds that an individual case is just as dangerous a source of the virus as an individual carrier. Owing to the great preponderance of carriers over cases, especially in urban districts, it is probable that in towns most poliomyelitis patients are infected by carriers, but this is not to say that, in suitable environmental conditions and among groups with a low herd immunity, a large amount of direct case-to-case infection does not take place. Instances of close contact between a pair of cases, like the one described by Dr. A. S. MACNALTY in our issue of Nov. 28th, and the evidence in the letter from Mr. WHITCHURCH HOWELL which we publish to-day, together with the well-known Swedish and Central European studies of the spread of poliomyelitis among scattered populations, and reports such as that of R. J. REECE,[1] who found more than one case in 11 out of the 18 houses which formed a Devonshire village, leave no room for any reasonable doubt that the clinical case of poliomyelitis can disseminate the virus. The outbreak of poliomyelitis in a small boarding school, which Mr. SCOTT BROWN reports at p. 1287, confirms this conclusion, and illustrates several other points in the œcology of poliomyelitis. All the clinically infected children in this school had a well-marked pharyngitis, and this agrees with the supposed mode of spread and portal of entry. Six of the eleven children who slept in three rooms contracted symptomatic infection in a way which strongly favoured the view that the virus was directly transmitted from case to case in the dormitories without interpolation of any carrier. The bulbar type of poliomyelitis has of late been growing commoner relative to the spinal form of the disease, and the fact that all SCOTT BROWN's cases showed bulbar involvement illustrates the variation exhibited by different strains of the same neurotropic virus in their affinity for special parts of the central nervous system.

W. WERNSTEDT,[2] using the Swedish epidemiological data, gave the first clear demonstration that an epidemic of poliomyelitis latently immunises a large proportion of the community who escape clinical attack. Last year W. L. AYCOCK and S. D. KRAMER[3] confirmed this epidemiological deduction by direct experiment. Using the observation that the blood of many normal subjects renders the virus of poliomyelitis innocuous to monkeys, they discovered that such immune subjects were commoner in town than country. In fact, herd-immunity was directly associated with the prevalence of symptomatic infection. There is thus little doubt that, as in diphtheria, large numbers of people acquire active immunity to poliomyelitis by infection without recognisable symptoms. SCOTT BROWN found that four healthy contacts in his school had immune blood sera, while one of two children who joined the school after the epidemic was susceptible—which suggests that the epidemic had latently immunised most members of this school who had escaped clinical attack, and who had not acquired immunity earlier in their childhood.

It is instructive to compare this epidemic with the outbreak of poliomyelitis at Broadstairs,[4] the brunt of which fell on good-class boarding schools. AYCOCK[5] thought that this outbreak was caused by infected milk, but his conclusions were contested by other authorities, and as often happens, both sides may have been partly right. The virus was probably distributed through Broadstairs in milk, but once the infection gained a footing among the susceptible class of children in the schools, its further spread was likely to have taken place in the dormitories by direct contact. As in other infections which are usually droplet-borne, poliomyelitis may sometimes be spread by milk, and C. LEVADITI and his colleagues[6] suspect that butter also may be a vehicle of infection. But such modes of transmission probably account for only a very small fraction of total infections.

Owing to the large number of anomalous and unrecognisable poliomyelitis infections, the problem of prevention is exceptionally difficult. Nevertheless the reports of relatively extensive outbreaks in schools are sufficiently numerous, and the disease is so often followed by permanent disability, if not by death, that it is worth going to considerable trouble, and putting the whole herd to some inconvenience, if by doing so one or two cases of paralysis are prevented. One thing these school outbreaks teach is that *symptomatic* poliomyelitis appears to have a special tendency to spread in dormitories. Therefore patients suffering from this disease should not be allowed to sleep in the same room with other children. On this principle it appears that—in contrast with some other infections, such as measles—many secondary infections of poliomyelitis might be prevented by disbanding a boarding school directly the first case was recognised. In such a case the parents of the returned children would have to be warned not to let them sleep in the same room as any younger children of the household. Although the efficacy and adequate supply of immune serum is still under investigation,[7] the time seems ripe for trying to give passive protection to the unaffected members of small but highly susceptible groups, such as we find in good-class boarding schools, when there is a chance of poliomyelitis becoming epidemic. Also it is obvious that the milk of such an institution should always be sterilised, and that all other dairy products should be beyond suspicion. During the prevalence of poliomyelitis all practitioners should suspect every febrile condition, remembering, as Mr. HOWELL points out, that much subsequent disability, and perhaps death, may be prevented by early orthopædic treatment. Moreover, serum ought to be given at the earliest possible moment, as is made clear once more by results just recorded by SHAW, THELANDER, and LIMPER.[8]

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[1] Proc. Roy. Soc. Med., 1912, v. (Sect. Epidem.), 29.

[2] Ergebn. d. inn. Med. u. Kinderheilk., 1924, xxvi., 248.

[3] Jour. Prev. Med., 1930, iv., 189.

[4] THE LANCET, 1926, ii., 1070, 1085; Brit. Med. Jour., 1927, i., 113.

[5] Amer. Jour. Hyg., 1927, vii., 701.

[6] Bull. de l'Acad. de Méd., 1931, cvi., 245.

It is by studies of disease in small communities where all the factors can be examined at once and where the whole population, healthy as well as sick, is constantly under the eye of the observer, that our knowledge of the œcology of disease is most likely to be advanced. Mr. SCOTT BROWN is therefore to be congratulated on grasping his epidemiological opportunity. Such opportunities are uncommon, and they are usually allowed to pass by, never to recur.

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STUFFINESS.

WITH the development of the domestic side of architecture a new sensation of stuffiness seems to have arisen. In the great hall and smaller rooms of an ancient castle, or the mud and wattle huts of the poorer classes in the Middle Ages, no lack of ventilation could have been apparent, as can be testified by those who have made gallant attempts to live in the stately homes of their ancestors, the principal winter consideration being how to avoid draughts. The extended use of glass windows, grates instead of big fires under large chimneys, the general use of well-fitting doors instead of hangings, and later the installation of gas and electric fires, have produced a different state of affairs, and in most modern houses and business offices the question of air conditioning has become important. This aspect of the problem of obtaining comfort has become more acute as reasons of convenience and economy have led to the use of central heating instead of individual fires.

Most of the authorities on hygiene during the last century, in view of the facts learnt about respiration and its products by the earlier biochemists, attributed the feeling of uneasiness, observed in heated rooms in which the concentration of humanity was high, to a pernicious or at least inconvenient excess of one of the principal products of respiration and of combustion—viz., carbon dioxide. The death of animals entering atmospheres such as that of the celebrated grotte du chien, at Royat in the Auvergne, in which this gas was known to accumulate in large quantities, must have given what seemed like irrefutable sanction to this theory—which was, however, not universally held. On the other hand, those who enjoyed their something-and-soda must have marvelled, if they thought about such things, at the slow rate at which they were poisoned. The high proportion of carbon dioxide invariably found in the air of stuffy rooms, and such places as theatres, public halls, and churches when well attended, nevertheless gave strong confirmation to the views of the orthodox school, which could claim the classical authority of LAVOISIER. Early in this century J. S. HALDANE informed a Select Committee of the House of Commons that carbon dioxide was itself of no importance, and was only to be considered as an index—not of course to be despised on this account. The proportion of carbon dioxide found in country air is about 0·03 per cent. by volume, and under indoor conditions it may reach 1 per cent. The consequent decrease of oxygen is rather greater but, as it is quite easy to breathe air which contains several per cent. less oxygen than the normal 21, or attenuated mountain air in which the actual pressure of oxygen is equivalent to less than half that in air at sea level, this is clearly not an essential factor. The theory of poisonous emanations leaving the body in the expired air has been found attractive, but there does not appear to be any evidence so far adduced to support a view which is certainly held by very few to-day.

Of recent years attention has been directed to the effect of the other principal product of respiration—namely, water vapour—on the air of occupied rooms, and much experimental work has been done by confining willing subjects in sealed chambers with devices for investigating the temperature and composition of the air and observing the physiological and psychological reactions of the subjects to the conditions. The main result of many researches has been to show that temperature and humidity are dominant factors in determining the well-being and working efficiency of persons who pass much of their time indoors in artificially heated rooms. The thermostatic arrangements of the human body, which are very efficient, depend chiefly on the regulation of the loss of heat by altering the rate of evaporation of water from the skin. It is now a commonplace of physics that, given a sufficient source of heat, such a process as evaporation depends for its efficiency on the speed with which the vapour can be diffused away from the evaporating surface. This is determined by the rate of movement of the air into which the vapour is evaporated and by its unsaturation. Clearly in still air removal of vapour must be very slow, owing to complete or nearly complete local saturation, when the return of molecules of vapour to the liquid almost if not quite compensates evaporation. If the air generally is not nearly saturated escape of water as vapour into it must be fairly rapid. Hence the feeling of malaise experienced in so-called close weather and in moist warm surroundings, and the relief in all states except absolute saturation—which even in rainy or foggy weather is seldom or never reached—obtained by fanning or the use of motor-driven circulating fans. Among the foremost who have experimented on these matters is Sir Leonard Hill, whose kata-thermometer, used with discretion, has been found to give valuable indications of the condition of the air from a hygienic point of view. It is therefore of peculiar interest that he has recently, in a lecture delivered at the Royal Institute of Public Health (and published in its journal for December), described what he considers an important, and certainly hitherto unobserved, factor in the conditioning of air. Hill attributes stuffiness, to which he is himself very sensitive, not to a mystic quality of ionisation which is sometimes invoked, but to the absorption by the horny epidermis of the longer infra-red rays emitted in relatively large proportions by radiants such as dull red electric fires, which certainly emit neither carbon dioxide nor water vapour. He says:

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[7] THE LANCET, Nov. 21st, p. 1144.

[8] Jour. Amer. Med. Assoc., Nov. 28th, p. 1620.

> "While my nasal airway has become obstructed when I faced an electric fire even 47 feet away, the interposition of a screen in front of the face, or the turning of the back to the fire, immediately results in the nose opening. It is quite clear then that the effect on the nose is a nervous reflex, due, not to the heated air, but to rays coming from the fire and acting on the naked skin of the face."

And he is confident that the long infra-red rays are the hitherto unknown or *x* quality of the atmosphere of stuffy rooms. It appears from the lecture that the unpleasant symptoms are not observed if a sufficiency of shorter rays fall on the skin to stimulate the deeper nerve-endings, or when suitable screens are interposed. If further experiments described in more detail than can be given in a more or less popular lecture, and based less on what may prove to be the idiosyncrasy of a person or persons, should confirm these observations the discovery would have a far-reaching effect on the design of sources of heat and on current schemes of air conditioning and ventilation. There is a good deal at stake, and it must be freely admitted that the most pleasant means of domestic, office, and workshop heating are those in which glowing radiants are used.

CHEMICAL CONSTITUTION OF THE VITAMINS.

We used to believe that in isolating the vitamins and identifying them chemically, the greatest difficulty was the smallness of the quantities in which they are present in the various foods from which they are derived. If a vitamin could be handled in a comparatively pure form, it seemed probable that exact knowledge of its nature and constitution would quickly be obtained. But vitamin D, or a form of it, has now pretty certainly been handled and subjected to physical tests, and yet we do not know chemically what it is. In June last, those who were present at the discussion at the Royal Society on the chemistry of the vitamins heard an account of three different attempts at isolation of the antirachitic substance. R. B. Bourdillon[1] and A. Windaus,[2] with their respective co-workers, both described the isolation of an actual crystalline substance from the mixture of substances produced by the ultraviolet irradiation of ergosterol. Bourdillon's method was to use vacuum distillation while Windaus brought about a separation by use of maleic anhydride. The two products agreed in their biological activity and in some but not all of their physical properties. Since then Windaus[3] has associated an active material, which he calls vitamin D_2, with the name of O. Linsert, retaining for his own material the name of vitamin D_1. Bourdillon[1] had already made the suggestion that there is more than one active substance, and in a letter to *Nature* of Oct. 31st, signed by his team in his absence through illness, the position is summed up thus: "It follows either that there are several substances having antirachitic activity or that none of these preparations is pure, and that the varying optical rotation is due to the presence of one or more impurities." Pure vitamin D is not therefore yet certainly isolated. As regards the chemical constitution of the vitamin, Bourdillon suggests that it is an isomeride of ergosterol[1] and Windaus[2] believes that in the photochemical transformation of ergosterol into vitamin D the molecular formula, the alcohol group, and the three double bonds are left unchanged, and that a structural rearrangement takes place which leads to an increase in the spatial size of the molecule.

Vitamin A also presents its own particularly complex chemical problem, for its relation to carotene is still by no means clear. When this year P. Karrer and co-workers and R. Kuhn and E. Lederer demonstrated that carotene consists of at least two forms, α and β carotene, with different melting points and different optical rotations, mixed in varying proportions, it appeared as if the whole position must be revised, and the specific parenthood of carotene towards vitamin A was again much in doubt. Further research,[4] however, has shown that the two forms of carotene have the same biological value as sources of vitamin A, which is strange since one form is optically active while the other is not. That vitamin A appears in the liver as the result of feeding purified carotene is generally accepted from the work of T. Moore, but there cannot be any simple quantitative relation between the two, since concentrates of vitamin A have been prepared from liver oils, which are biologically active in doses much smaller than the minimal effective dose of carotene. O. Rosenheim and

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[1] Proc. Roy. Soc. B., 1931, cviii., 340.

[2] Ibid., p. 568.

[3] Annal. d. Chem., 1931, clxxxix., 252.

[4] Ber. Chem. Ges., 1931, lxiv., 1859; Arkiv Kemi Mineral. o. Geol., 1931, x., No. 15.

W. W. STARLING have lately pointed out the ease with which carotene appears to form adsorption compounds when treated with iodine. If vitamin A were simply a substance adsorbed on carotene, one would expect that the absorption spectrum usually regarded as characteristic of it, with a band at 328 $\mu\mu$ in the ultra-violet, would be visible together with that of carotene; but it is not, although in naturally occurring mixtures of carotene and vitamin A, such as butter, the 328 $\mu\mu$ band is visible (R. A. MORTON and I. M. HEILBRON). This band, or one very near it, is possessed by a certain colourless substance derived from carotene (dihydrocarotene), but evidence of its biological activity is conflicting. B. AHMAD and J. C. DRUMMOND[5] found it gave irregular results but with little real evidence of biological activity, while EULER and his co-workers[6] found it definitely active, but not apparently in doses small enough for it to appear likely that it could be vitamin A itself. Lastly, from America comes a statement that liver tissue contains an enzyme capable of converting carotene into vitamin A in vitro, as evidenced by the disappearance of the carotene and the appearance of the absorption band characteristic of vitamin A (H. S. OLCOTT and D. C. MCCANN[7]).

A and D are the only two vitamins about whose chemistry we have any solid body of knowledge and it is obvious how incomplete their story still is. A report is to hand that vitamin C has been isolated by a Scandinavian worker, but until a scientific account of the work is available no comment can be offered. As regards vitamin B_1, the antineuritic vitamin, B. C. P. JANSEN and W. F. DONATH in 1927 prepared from rice polishings, by very elaborate fractionation, a crystalline substance which they believed to be the hydrochloride of the antineuritic vitamin, but it is noteworthy that the substance chosen as a standard for vitamin B_1, by the League of Nations committee on vitamin standardisation, was an adsorption product on fuller's earth of an extract of rice polishings. Of vitamin B_2 there is nothing to be said, save that it appears to possess a close and curious association with protein.

The problems still are legion, but the progress is none the less remarkable since the time, only some ten years ago, when vitamins A and D were not distinguished as separate entities.

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[5] Jour. Soc. Chem. Ind., 1931, l., 183T.
[6] Helv. Chim. Acta, 1931, xiv., 838.
[7] Science, 1931, lxxiv., 414. Quoted in Jour. Amer. Med. Assoc., Nov. 28th, p. 1628.

ANNOTATIONS

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.

THE seventh annual report of the London School of Hygiene could have no other opening than a mention of its great loss in the death of its Director, Sir Andrew Balfour. His passing has signalised a certain change in the management of the School, which is now a school of the University of London, but one which has imperial and international responsibilities of a more direct kind and in greater degree than are usually found in university schools. The board of management felt that the School should have regard to university tradition and university standards, and the post left vacant has not therefore been filled by the appointment of another director, but the duties have been entrusted to a member of the professorial staff acting as dean. Prof. W. W. Jameson was appointed dean for five years from May, 1931. His first report shows the immense amount of work carried out in the School. There are now six departments, some of them with subdivisions: public health; bacteriology and immunology; biochemistry, with chemistry as applied to hygiene; epidemiology and vital statistics; clinical tropical medicine; and medical zoology, with helminthology, protozoology, and entomology, while the Institute of Agricultural Parasitology at the St. Albans farm forms another department in close touch with the work of the School. Almost a separate division, though at present included under public health, is the department of medical industrial psychology and applied physiology, which is enabling the School to play a large part in the revolution that is taking place in psychological training. The students have given an excellent account of themselves in examinations, and a list of their countries and destinations emphasises once again the cosmopolitan field influenced by the School. An agreement has been made with the Seamen's Hospital Society whereby members of the medical staff of the Hospital for Tropical Diseases form the staff of the new division of clinical tropical medicine at the School. This places the valuable clinical resources of the Society at the disposal of the students. Through the special programmes of instruction and study tours, the whole health organisation of Great Britain is laid open by the School for the information of students from overseas, and the dean's report shows throughout that the conception of the School as a great centre of teaching and research is being realised.

So great an international service naturally involves a large budget. When at least £10,000 per annum must depend on voluntary support, and particularly when great employers of labour are suffering from grave industrial depression, the position naturally cannot be free from anxiety. The School has no funds whatever to finance research work except the ad hoc grants for particular investigations provided by such bodies as the Medical Research Council, the Empire Marketing Board, and the Department of Scientific and Industrial Research. Additional funds are needed at the earliest possible moment if the great programme which the School has set itself is not to be curtailed.

HÆMORRHAGIC BRIGHT'S DISEASE.

IN the Thayer lectures[1] in clinical medicine, delivered before the Johns Hopkins Medical Society, Dr. Thomas Addis recapitulates the natural history of that form of Bright's disease which is more commonly known as glomerulo-nephritis, and has recently been named nephritis acris.[2] For a considerable number of years an admirable clinical research on this subject has been carried out by Addis and those associated with him in elucidation of the different phases of this disease. The present position, as outlined in these two lectures, harmonises with the results of van Slyke and his co-workers,[3] who similarly subdivide Bright's disease into three main types: hæmorrhagic, degenerative, and arterio-sclerotic nephritis. In cases of the hæmorrhagic type observed from the onset of the disease Addis finds that the subsequent history develops in one of three directions. Thus in a total of 51 cases rather more than half recovered completely and were lost sight of, while six went steadily downhill into uræmia. The remainder, and these principally excite comment, entered into a latent stage after the acute attack had subsided, in which the patients "felt perfectly well as far as they knew, or as far as the clinician could tell them by the methods of inspection, palpation, percussion, and auscultation." The clinician, however, by a quantitative estimation of the protein, red cells, and casts in the urine could say that the patient was in fact suffering from Bright's disease, and, from the notable excess of red cells present, could identify it as the hæmorrhagic form. Addis found that in 25 patients the average duration of this latent period was 12 years, and his current work on 77 patients confirms his conception that hæmorrhagic Bright's disease, when it passes beyond the acute stage, persists for decades rather than for years. The terminal phase is that of renal failure. Moreover, he points out how easily the onset of the disease may be unnoticed by the patient, especially if it affects an adult, and quotes the case of a man who went to his physician to find out why his weight had suddenly increased by more than 10 lb.; "he did not know that his urine had a dark mahogany colour, that he had a hypertension, and that he had a slight generalised œdema." The significance of these facts is obvious: they provide an explanation of the mechanism of that insidious form of chronic nephritis, or nephritis repens, the starting point of which has always been a puzzle to the clinician. As Addis points out, it is most readily understood if it is regarded as belonging to the category of hæmorrhagic nephritis, and there is good reason to anticipate that a continuation of his work will establish this point. The histology of Bright's disease is certainly in accordance with his view.

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[1] Bull. Johns Hopkins Hosp., 1931, xlix., 203, 271.
[2] Med. Research Council Spec. Rep. Series No. 142, 1929.

SUICIDE STATISTICS.

Part I. (Medical) of the Registrar-General's Statistical Review of England and Wales for the year 1930 (*7s. 6d.*) contains a table of suicide statistics classified in accordance with information furnished by coroners. The classification is by sex, age, and method. There were 5056 suicides in the year, 3527 males and 1529 females. Why are men less tenacious than women in the struggle of life? The Registrar-General's review gives us the bare figures; it offers no explanations. The table shows the prevalence of suicide at different ages. There were 400 male suicides between the age of 25 and 35, 548 between that of 35 and 45, 861 between 45 and 55, 869 between 55 and 65, 482 between 65 and 75, and 147 of the age of 75 and upwards. The figures for women do not follow quite the same progression. There were 250 female suicides between 25 and 35 years of age, 276 between 35 and 45, 383 between 45 and 55, 289 between 55 and 65, 167 between 65 and 75, and 37 from the age of 75 onwards. The 1930 totals require, of course, to be coördinated with those of previous years and to be adjusted with statistics of the number of men and women of those decennial age-groups. As they stand, the figures indicate that both men and women pass through a bad time between the ages of 45 and 55; in the following ten-year period men seem to be less resilient than women. As to the method adopted, if we add the figures for both sexes together, we find 1348 cases of coal-gas poisoning, 887 of drowning, 753 of hanging or strangulation, 613 of death by the use of cutting or piercing instruments, 262 of death by firearms, and 214 of railway suicides. In proportion to the other sex, more men than women hang themselves, more women than men have recourse to gas poisoning. Only 8 women commit suicide with firearms, as against 254 men. Cases of suicide by taking solid or liquid poisons or corrosive substances amount to 715. Here the availability of the means is reflected by the detailed figures. Lysol—available, as recent litigation has shown, by purchase from automatic machines—accounts for 354 men and women, while opium, laudanum, and morphia account for only 5. The latter figure illustrates one valuable result of the restrictions imposed by the Dangerous Drugs Acts and Regulations. Other means of suicide in this category are carbolic acid (56 cases), hydrochloric acid (53), potassium cyanide (43), prussic acid, hydrocyanic acid (29), oxalic acid (26), ammonia (19), and strychnine (4). Although there are very few "weed-killer" cases of suicide, the figures in this category of poisonings may cause the public to consider how far it is desirable to permit the almost indiscriminate retailing of poisons by persons not specially trained in knowledge of the properties of the drugs they sell. It is a matter not to be ignored when any amendment of the Poisons and Pharmacy Act is proposed.

MEDICAL USES OF RADIUM.

The ninth report on radium, issued by the Medical Research Council,[1] summarises the present position of radium therapy and gives a general indication of the results of treatment of cancer. As the technique improves and becomes more familiar, better results are obtained, but malignant disease of the œsophagus and rectum still presents an insoluble problem, although it is sometimes possible to convert an inoperable rectal growth into an operable one. All the centres have recently been asked to send returns showing the numbers treated by the various methods. Replies from Aberdeen, Cardiff, St. Mark's Hospital, St. Peter's Hospital, and University College Hospital show that just over 1000 cases were treated during 1930, of which 18·5 per cent. were too far advanced for any but palliative methods. Of the remainder, 44·3 per cent. were treated by radium alone, 39·5 per cent. by surgery alone, 3·5 per cent. by X rays alone, 6·7 per cent. by surgery and radium, 2·7 per cent. by surgery and X rays, 2·6 per cent. by radium and X rays, and 0·7 per cent. by surgery, radium, and X rays. For cancer of the breast radium has been fairly widely used with considerable success, sometimes alone and sometimes combined with surgery. The report is illustrated with a number of plates showing pathological specimens. The effect of irradiation on the primary growth seems, as a rule, to be satisfactory; those who die, die of distant metastases. For cancer of the cervix the technique of

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[3] Medicine, 1930, ix., 257.

[1] Medical Uses of Radium, Summary of Reports from Research Centres for 1930. H.M. Stationery Office. 1931. Pp. 37. 1s.

Stockholm is the more general, but that of Paris is sometimes applied. Cancer of the tongue has been treated by interstitial needling, and growths of the hard palate by prolonged exposure to small doses of radium in dental carriers. The results in inoperable cases have been encouraging. Birmingham regards the larynx as the most hopeful sphere for the use of radon, particularly for extensive septic inoperable growths from the pharynx and hypopharnyx. St. Peter's Hospital has treated 28 cases of cancer of the bladder and finds that the combination of diathermy with radium gives immediate relief to advanced incurable cases and will also control severe hæmorrhage. From the Royal Infirmary, Manchester, comes a report on five hemispheral gliomas treated by external radiation; two patients are in good health, one makes no progress, and two are dead. It is clear that gliomas as a class are not very radio-sensitive. The Middlesex Hospital reports two cases, both successful. Experimental work has been continued at St. Bartholomew's on the effects of radium on the cerebral tissue of the rabbit. It has been found that considerable damage is done by the end of 20 hours, although hæmorrhages do not appear before the twenty-fourth hour. Since there is always proliferation of neuroglia when radium needles are inserted, it seems unlikely that radium will be therapeutically useful in the treatment of those gliomas of which the cells resemble those of the adult neuroglia. Radium treatment has been attempted in certain cases of brain tumour in the surgical unit, with varying results. A correlation of the clinical results of radium therapy with the histological types in sarcomata shows that spindle-cell sarcoma gave 50 per cent. of good results in 24 cases; round-cell sarcoma gave 41 per cent. of good results in 22 cases and lymphosarcoma gave 23·5 per cent. of good results in 17 cases. Obviously radium has a sphere of usefulness in sarcoma.

BURNING CELLULOID.

SINCE the Cleveland disaster two years ago[1] much attention has been given to the dangers arising from the inflammable nature of the cellulose nitrate base upon which ordinary X ray film is laid. They were strikingly illustrated in a moving picture shown by Prof. Fedor Haenisch, of Hamburg, to the British Institute of Radiology at its annual congress held in London last week. Besides the nitrate base there is the so-called safety film, in which the base consists of cellulose acetate. This costs about 20 per cent. more than the other, it is more difficult to handle in the dark room, and there is some doubt whether the finished film has the same permanence as on the nitrate base. For these reasons nitrate film is still used by the great majority of hospitals and private radiologists. The principal danger to life from its use is not so much the risk of fire from the freely burning film, as the inhalation of toxic gases evolved when the celluloid undergoes flameless disintegration in the absence of a free supply of oxygen. Prof. Haenisch showed how when a blazing mass of nitrate film is thrust under the surface of a large excess of water the flames may be extinguished all right, but the celluloid continues to decompose beneath the water until the whole of it is destroyed, with evolution of large volumes of gas consisting of the various oxides of nitrogen, carbon monoxide, and prussic acid. The most dangerous of these appear to be the oxides of nitrogen. After the Cleveland disaster the American Chemical Warfare Service showed that the inhalation of these fumes in a concentration of three to five parts per 10,000 of air is immediately fatal. And a kilogramme of celluloid can liberate some 600 litres of gas when this flameless decomposition occurs. It is essential for firemen and all who have to deal with nitrate film to be aware of the danger from inhalation of minute quantities of nitric fumes.

In Germany a definite standard has been laid down to which film sold as "safety" must conform. A strip 20 by 3·5 cm. of the film to be tested is clamped in a horizontal position by one end, and a match is applied to the lower corner of the free end. If the film either ceases to burn upon the withdrawal of the match, or takes more than 60 seconds for its complete combustion, it is entitled to be described as safety film. Prof. Haenisch illustrated this test with both nitrate and acetate samples, and showed that the test strip of the latter invariably ceased to burn immediately after the withdrawal of the match. The acetate film will not smoulder, or undergo flameless disintegration, and therefore does not evolve toxic gases in any serious quantity. Hence the storage danger of acetate film is no greater than that of paper. He also demonstrated the slowing down of the combustion rate of nitrate film brought about by the paper and cardboard wrappings in which it is sent out. When an unopened packet of 12 nitrate films was placed in the actual flame of a bunsen burner, some five minutes elapsed before the film took fire; it was then easily extinguished, and it was found that only the extreme edges of the films were burned. It is most desirable that film makers should reduce the price and, if possible, remove the inherent drawbacks of the acetate base. In the meantime stringent regulations governing the storage of nitrate film have been made in America and Germany. They are in fact so drastic that the cost of their application would be prohibitive in most hospitals in this country, and it is doubtful whether they are necessary. What really matters is that the film store should be situated either in an outbuilding, or else on the top floor of the building, so as to minimise the risk of invasion of the inhabited portion by the fumes, should ignition occur. The store should be well ventilated, and have a thin glass window, easily broken by air pressure, to allow of the free escape of the gases. High-pressure steam heating and plug connexions for portable electric lamps are to be avoided, and precautions should be taken to prevent overheating by the sun, where that is possible. For it must be borne in mind that overheating of the film, without the application of an actual flame, may be enough to initiate disintegration. The American regulations insist upon automatic sprinklers, but the quantity of water available would hardly suffice to extinguish the burning celluloid, and might well chill it to the point at which flameless decomposition would take place. Once any considerable quantity of celluloid has become ignited, it is probably safer to allow it to burn freely until it is all destroyed.

RESUSCITATION.

THE efficiency of carbon dioxide in restoring respiration and of puncture of the auricle in restoring the heart beat were emphatically illustrated in the paper which Sir Francis Shipway read before the Anæsthetic Section of the Royal Society of Medicine on Friday last. He dealt with resuscitation of patients collapsing during anæsthesia and of the newly born. For the latter, warmth, artificial respiration gently performed, and inflation with carbon dioxide and oxygen were the remedies recommended, a distinction being drawn between the treatment of the "blue" and the "white" infants. With regard to massage of the heart and to intracardiac injections as methods of restarting the heart beat Sir Francis showed that subdiaphragmatic massage was rarely successful, and that so many different drugs had been successfully injected intracardially that probably success was not dependent on the drug at all. In support of this argument he cited the laboratory work of Watson who, in 22 out of 60 experiments on dogs killed by chloroform, restarted the heart beat by puncture of the heart alone. A. S. Hyman's clinical work was quoted in further support of the contention that it is the needle puncture of the heart, not the injected drug, which is the essential factor in restarting the heart by intracardiac injection. Moreover, it was shown that puncture of the auricle is better than puncture of the ventricle, for the auricle is more sensitive to stimulation and also if fibrillation is set up then it is not incompatible with life. Efforts to restart the heart should be made not more than five minutes after the beat has ceased, but the determination of this movement was shown to be extremely difficult. In the case reported by Dr. A. Fakhry in our correspondence columns this week, the pulse was still occasionally perceptible, though the patient's condition seemed desperate. The danger of delay lies in the inevitable damage to cortical cells of the brain if they are deprived too long of their oxygen supply. Illustration of this fact was given in the case of the child collapsing after a tonsillectomy, who was revived after the heart had apparently ceased to beat at least 13 minutes. Her eventual recovery was accompanied by cerebral symptoms that lasted for two years. Sir Francis alluded to the danger of adrenalin in the presence of chloroform anæsthesia and did not believe that it was limited, as A. G. Levy has maintained, to light narcosis. He insisted on the necessity for promptitude in the application of restorative measures when these are needed, and at the close of the meeting demonstrated several forms of restorative apparatus. Dame Louise McIlroy described her methods for dealing with newly born infants that required resuscitation. She uses oil, not baths, and warmth, gentle squeezing of the chest, and application of oxygen with 5 per cent. carbon dioxide. The many other speakers who followed evinced a certain amount of difference of opinion as to the desirability or not of employing endotracheal intubation early in the process of resuscitation.

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[1] THE LANCET, 1929, i., 1099, 1167, 1178.

INDUCTION OF LABOUR BY MEDICINAL MEANS.

Two years ago[1] we drew attention to the fœtal deaths which occasionally follow medicinal induction of labour and are ascribed to the quinine generally employed. In this regard a paper by A. Mathieu and M. S. Sichel[2] is of interest because they review 320 cases seen in private practice during nine years and say that quinine was omitted from the last 120 without apparently detracting from the effectiveness of the method. By widely extending the indications for non-operative induction they claim to have saved much maternal mortality and several fœtal lives. Their results certainly support the claim, for in their 320 cases there were no maternal deaths, and the number of fœtal deaths, seven in all, was well below the usual 3 per cent. average rate. But the classification used and the lack of detail in their paper makes it impossible to judge accurately of the type of case selected for treatment in this way. Such indefinite reasons as distress and discomfort (48 cases), false pains (16 cases), and fear of precipitate labour (9 cases) are given and seem to suggest that expediency and the convenience of patient and doctor may be influential factors in determining the adoption of a method that is not regarded as carrying any risk to mother or child. The procedure adopted at first was to administer ʒii. of castor oil and grs. x. of quinine sulphate followed two hours later by a hot soap enema. When the enema was about to be expelled, a hypodermic injection of ♏iii. of pituitary extract was given, and this dose was repeated half hourly till labour began or 15 injections had been given, after which no more pituitary was injected. Failure was admitted and the induction was stopped if labour pains did not begin within eight hours of the first injection. The dose of quinine was later cut down to grs. v. and afterwards given up altogether. It appears that 96 per cent. of the cases were successful—about 70 per cent. at the first attempt, 20 per cent. at the second, and the remainder after 3, 4, or 5 attempts. The writers confirm the general experience that the nearer the patient is to term, the greater the proportion of immediate and successful inductions. With the cervix effaced, the head deeply engaged, and the os admitting a finger, response was readily obtained. When the head was floating and the cervix not taken up, it was often noticed that by the second or third attempt the head had become engaged and the response to the next attempt was usually rapid. In the 29 cases of spontaneous rupture of the membranes, which Mathieu and Sichel regard as an indication for their method, induction was always successful at the first trial. Apart from the excellent results recorded in this paper, the striking feature is the small percentage of cases in which natural delivery was attained. Doubtless there was among them an undue proportion of abnormal cases, but even making ample allowance on this account, the proportion of spontaneous deliveries was but 15 per cent., and in the birth of 323 children 80 per cent. were delivered by the forceps, version was performed 12 times, and pubiotomy and Cæsarean section each once. It is an open question whether women who have undergone this method of induction are in a condition which favours the best uterine action. Possibly the physical and psychical disturbance occasioned by the medical treatment may interfere with normal function, and the large proportion of failures to complete labour, necessitating the use of low forceps, suggests that this may be the explanation. If so, a practice suitable for a well-equipped hospital and skilled attendants may have its risks if adopted by all and sundry and in any circumstances; for in the long run injuries, morbidity, and mortality vary directly with the degree of interference in labour.

BACTERIOPHAGE IN CHOLERA.

Of late years we have frequently drawn attention to the work on bacteriophage which is going on in India. This work became more complex when I. Asheshov isolated three types of bacteriophage, and laid it down that for therapeutic purposes all these at least must be present.[1] Since then a good deal of intricate research has been undertaken, and it is steadily yielding fresh information. The individual types of bacteriophage, when separated, prove somewhat unstable, and in artificial mixtures also they are liable to die. Natural mixtures from patients, is seen to perfection there is no question of its origin from squamous epithelium. Why then should such an origin be always assumed in the cervix uteri? Further, if anyone will sit down, and, with an open mind and an oil immersion lens, examine any large number of sections of cancer of the cervix he will, I contend, find that about 70 per cent. belong to this group.

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[1] The Lancet, 1929, i., 1047.

[2] Surg., Gyn., and Obst., Nov., 1931, p. 676.

[1] See The Lancet, 1930, ii., 1248.

It is a curious fact that the majority of men who are born or brought up to a given belief demand the most rigorous proof of any adverse belief, but assume that their own needs none.

I am, Sir, yours faithfully,

F. J. BROWNE.

London, W.C., Dec. 7th, 1931.

ACTIVE IMMUNISATION IN VIRUS DISEASES.

To the Editor of THE LANCET.

SIR,—In the report of a discussion on this subject in your issue of Dec. 5th (p. 1241) I am stated to have said "that the possible persistence of infectivity of a dog *after immunisation* to distemper . . . became a serious consideration in hospital." (Italics mine.) This would bear the interpretation that I feared that immune dogs might be carriers of distemper infection, and that is a matter that I did not raise in the discussion. The point I brought forward arose from the view expressed by Dr. Andrewes, who opened the discussion, relative to the possibility of a dog in the process of immunisation being capable of spreading infective material. He considered it would probably not be of much importance because of the widespread occurrence of infective material under street conditions. I pointed out, however, that it was of considerable importance whether or not a dog in hospital eliminated virus *during the process of active immunisation* on account of the possible danger to young susceptible dogs in the hospital or kennels at the same time. I shall be glad if you will allow me to make this correction, as I have no reason to suspect that vaccinated dogs remain carriers of infection afterwards.

I am, Sir, yours faithfully,

GEO. H. WOOLDRIDGE.

Royal Veterinary College, Camden Town, N.W.,
Dec. 7th, 1931.

MEASLES.

To the Editor of THE LANCET.

SIR,—In his reply to my letter (Nov. 14th, p. 1159) Dr. Bedson takes the view that seeing an attack can be prevented from developing in an infected child, therefore measles is preventable. He appears to disregard the fact that although the child escapes on that occasion, the attack is simply delayed, that in a month the child is as liable to attack as before, and that sooner or later it will be attacked. Seeing that the attack is only delayed, from the point of view of the epidemiologist Dr. Bedson is wrong in stating that measles is preventable.

I have no wish to argue about words so long as my meaning is perfectly understood, and in case I have not expressed myself clearly, I hope you will allow me to restate what I said regarding the exclusion of contacts. My argument is that seeing that measles, even when home contacts are rigorously excluded, spreads through a school attacking or immunising by minimal infections all scholars not already immune, the present rules excluding home contacts from infected departments are a waste of both time and money, neither of which can be afforded at the present time. It is because we are not honest enough to admit that measles is unpreventable that these rules are continued, their continuation leading the parents to believe that the spread of measles is in some measure being controlled. I am glad that at last parents have been told the truth, which will leave medical officers of health freer to discard useless rules with regard to exclusion.

Whilst I see no useful future for convalescent serum in eradicating measles, I can quite share Dr. Bedson's enthusiasm for convalescent serum treatment as an agent to delay attack until school age, and I only hope that the present limited supplies of convalescent serum may be used to the best advantage. May I suggest that health departments may be of service in the following way? In most towns children absent from school suffering from measles and cases of measles occurring in creches are notified to the medical officer of health and are at once visited. The medical officer of health in this way is informed of all home and creche contacts, and could arrange for the serum treatment of as many contacts as the quantity of serum at his disposal allowed; he would naturally give preference to the age-groups in which case mortality was highest, beginning with the 9–18 month groups.

I think Dr. Bedson will find that the very men who most resent their time being wasted in preparing useless lists as to which school-children have, and which school-children have not had measles, and in excluding contacts to no purpose, are the men most eager to take advantage of the great benefits likely to follow the wide use of convalescent serum for selected age-groups.

I am, Sir, yours faithfully,

DUNCAN FORBES,

Dec. 3rd, 1931. Medical Officer of Health, Brighton.

⁂ Dr. Forbes is rightly anxious to explode the belief that a person can escape measles by avoiding contacts. Dr. Bedson wants to explode the other prevalent belief—that the medical profession is helpless in face of this disease. We still think it misleading to call an infection "almost wholly unpreventable" if one can be pretty sure of preventing it (though temporarily) in a particular case, and if permanent immunity can be conferred (as in small-pox) by a modified attack. All that matters, however, is that these prophylactic methods should be applied to the best advantage, and we welcome Dr. Forbes's declaration of policy.—ED. L.

RESEARCH IN ASTHMA.

THE URINARY PROTEOSE.

To the Editor of THE LANCET.

SIR,—In your issue of Nov. 28th I gave some results of mine which make it difficult to accept as proven the specificity of Dr. Oriel's proteose; in your last issue Dr. Barber and Dr. Oriel write to protest. If I understand the first half of Dr. Barber's long and interesting letter, I had no right to look for, or at any rate to expect to find, evidence of specific sensitisation by the usual intradermal injection; there might, on the contrary, be only a reaction from an epidermal patch test, and this might occur in this place but not in that place, and on this day but not on that day; or else again the patient might not react on the dermis or epidermis at all but only, let us say, in the lungs. My reply is that I looked for intradermal specific reactions with "protose" because we had been told that we should find them; further, when Dr. Oriel was told that these intradermal tests of mine had not come off, he did *not* say that the skin might not be sensitised but some other part of the body. I may now add that when invited to Guy's Hospital last week by Dr. Poulton to be taught the error of my ways, it was by the intradermal test only that he and Dr. Oriel tried to convince me. If we are now to take Dr. Barber's opinion that positive dermal reactions are only to be obtained occasionally, it would certainly explain all failures, but it seems to me to put this proteose business on a different footing to the dermal tests for, let us say, horse-asthma or hay-fever.

These dermal reactions, if we may shut our eyes to Dr. Barber's suggestion of fortuitousness, clearly demand thorough investigation; but my experiences at Guy's Hospital last week told me that Dr. Poulton and Dr. Oriel are looking for slighter changes than I have been accustomed to call positive reactions. They confirm also my previous opinion that the proteoses they are working with are liable to be toxic, and so to produce "reactions" on the normal man's skin. Dr. Oriel, working with hay-fever proteose, had, on the balance, the better of me at that meeting, in that he got two very minimal "reactions" on two hay-fever people tested, and only got a "reaction" on one of the three normal controls. On the other hand, Dr. Poulton, in demonstrating on a presumably selected case of asthma-eczema with its own proteose, produced not only a reaction on him but also three equivalent reactions on the three normals tested. When we note how all these "proteoses" tend to be tainted with general toxicity (not surprising since they have been carefully excreted by the kidneys), and remember how much more prone to react is the skin of the asthma group of patients than the skin of the normal man, the door is seen to be wide open for a whole number of confusing results.

Dr. Barber complains that I did not refer to Dr. Oriel's guinea-pig uterus experiments; naturally I only wrote on my own first-hand evidence with proteose. If I might refer to these experiments without first-hand knowledge of them, I would say at once that they are very suggestive and ingenious. The anaphylactic uterus is employed as a piece of litmus to test out the identity of proteose with this or that food substance. The laborious and complicated nature of the work would, however, seem to make it difficult to do adequate controls and would give an opening for accidental results; I find myself, in reading of them, saying, "I wonder if he did this control," "I wonder if he had any results going the wrong way." I hesitate to write that comment because it seems a niggardly recognition of a great deal of very ingenious work. Five years ago Dr. D. M. Thomas and I attempted to sensitise passively 30 guinea-pigs, most of them with serum from hay-fever patients, but some with serum from horse-asthma cases. We tried a variety of methods but did not succeed in sensitising any one of the guinea-pigs to pollen or to horse dandruff, as judged either by dermal reactions or by Dale's uterus technique.

With regard to Dr. Barber's clinical evidence, it is always difficult to ascribe with certainty a "reaction" to this or that dose, and never more so than in patients of the asthma type. I have got such dramatic "reactions" after control injections of normal saline that I distrust such clinical evidence. Dr. Barber's warning that it may be dangerous to use more than a fortieth of a cubic centimetre of a hundred-n s were very cold, the heart could not be
shock when i h the ear directly or with the stethoscope,
cubic centimetre sign of life was a very occasional feeble
proteose prepared occurring not more than three or
no effect with it either at once begun; a mouth gag
Dr. Barber's clinical evi drawn forward by a tongue
reactions occur usually on trychnia and 0·5 c.cm.
dose again suggests very strongly tha dermically, and
is not comparable to, say, horse-asth tes later the
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Turning to Dr. Oriel's letter, it is interesting to learn that the proteose made by him, which failed to react intradermally on my asthma-eczema patient who had produced it, was subsequently used to make a guinea-pig typically anaphylactic; this shows that, whether or not it reacted specifically on my patient, it was at any rate capable of functioning as an antigen.

The difficulties stated in my original letter have not been, for me at least, removed. I think we may say that the proteose reactions do *not* stand on the same footing as, for instance, the pollen dermal reactions for hay-fever. Though the work on the proteoses is interesting and suggestive, I would regard their character as still sub-judice.

I am, Sir, yours faithfully,
JOHN FREEMAN.

Devonshire-place, W., Dec. 8th, 1931.

SCIENTIFIC POST-MORTEM EXAMINATION OF PEDIGREE ANIMALS.

To the Editor of THE LANCET.

SIR,—In reading issues of that historical sporting paper the *Field* I have been struck by the certainty with which the pedigrees of all kinds of animals can be traced through many generations. I wonder whether the causes of death in past generations have been authoritatively and accurately recorded as the pedigrees. These records—if such be in existence—would contain a wealth of material to all those interested in the relations of heredity, eugenics, and disease. If the death certificates are untrustworthy there has been an enormous waste of information, and it is high time attention should be paid to this matter. Far be it from me to suggest that the Medical Research Council should interest itself in sporting and agricultural matters in general; but this inquiry seems to me to be one that comes within the province of a useful scientific investigation.

I am, Sir, yours faithfully,
G. LENTHAL CHEATLE.

Harley-street, W., Dec. 7th, 1931.

FEMALE CIRCUMCISION.

To the Editor of THE LANCET.

SIR,—In the valuable article on Female Circumcision and Infibulation, by Dr. J. H. Sequeira, in your issue of Nov. 7th (p. 1054), the writer infers that the Conference on African Children (organised by the Save the Children Fund, and held last June in Geneva) supported the suggestions which were made by the Duchess of Atholl and telegraphed out to Kenya. As I was a delegate to that Conference, I would be grateful if you would allow me to explain that these suggestions were not supported by the full Conference. Towards the end of it, the committee appointed to draw up the final statement on infant mortality defeated the suggestion made by one of its members that Governments should be asked to pass legislation to prohibit female circumcision, the majority of is seen to perfection there is no question con through from squamous epithelium. Why the the only safe an origin be always assumed in uch the problem, Further, if anyone will sit dowrabition by an alien mind and an oil immersion partial effect in stopping number of sections of ca be driven underground. I contend, find thahe committee's decision, the Con-group. al plenary session made no suggestion

It is a cus to any legislation to deal with this are born. The final statement of the Conference the mœ obtained from the secretary of the Save the assuuren Fund, 26, Gordon-street, London, W.C. 1, d a book on the Conference entitled "The African Child," by Evelyn Sharp, is obtainable at the same address for 2*s.* 6*d.*

I am, Sir, yours faithfully,

ISABEL ROSS, B.A.

London, N.W., Dec. 4th, 1931. (formerly of Kenya Colony).

BRUCELLA ABORTUS INFECTION.

To the Editor of THE LANCET.

SIR,—I read with interest the case described by Dr. F. Bedo Hobbs in your issue of Sept. 26th (p. 683). Cultures of *Br. melitensis*, especially when they have been subcultured many times, are very liable to agglutinate in fairly high dilution with sera of patients who have had pyrexia over a long period. This phenomenon is often very marked in streptococcal infections. I have known the sera of patients with subacute endocarditis to agglutinate stock cultures of *Br. melitensis* in much higher dilutions than those mentioned by Dr. Hobbs. The agglutination test in undulant fever has considerably less value than in the enteric fevers. The chart shows that *Br. melitensis* and *Br. abortus* were not agglutinated in dilutions of 1 in 25, but were agglutinated in somewhat higher dilutions. If this chart is accepted as of any diagnostic value, then a large proportion of cases of continued obscure fevers may be diagnosed as *Br. abortus* infections.

I am, Sir, yours faithfully,

LUCIUS NICHOLLS,
Director,
Bacteriological Institute, Ceylon.

Nov. 16th, 1931.

PSYCHOLOGICAL ASPECTS OF GYNÆCOLOGY.

THE ARTIFICIAL CLIMACTERIC.

To the Editor of THE LANCET.

SIR,—In connexion with the question of the sterilisation of women raised by Dr. Crookshank in your issue of Nov. 27th, there is an important point which is, I think, not generally recognised. Many believe that if the ovaries are completely removed the phenomena of the climacteric will not appear, or if they do will end shortly after the operation. I do not know what the effects may be when sterilisation is effected by X rays, but it is certainly not the case where it is the result of operation. I was able to watch the course of events in three cases, two of them trained nurses; in all three I knew the surgeon, and was satisfied that the operation was complete. In all three cases very distinct climacteric symptoms appeared, presumably at the time when they would have appeared apart from surgical interference—viz., about 45. The operations had all been done at least 15 years before. Severe headaches, flushings, and emotional instability were present for some months, and then gradually passed away. One of the nurses, a widow, said that for the first time in her life she had had a sexual dream, a somewhat significant fact. All had had complete amenorrhœa since the operation, and all, I think, supposed they would be exempt from climacteric trouble, so that suggestion is hardly in question.

It would appear that the date of the involutionary processes which we sum up as the climacteric (menopause is a bad term and should be abolished) is more or less set for the individual as are also the age of puberty and the probable duration of life. They may be altered by disturbing environment, illness, and so forth, but in the case of the climacteric the mere removal of the organs in which it finds its most obvious expression does not prevent the accomplishment of other changes largely psychological in character. The menopause is really one of the least important signs of the climacteric, and may antedate the appearance of other symptoms, apart from surgical interference, by a year or two.

I am, Sir, yours faithfully,

E. HOBHOUSE.

Grosvenor-hill, Wimbledon, S.W., Dec. 7th, 1931.

RADIUM BY MOUTH OR INJECTION.

To the Editor of THE LANCET.

SIR,—With reference to the liability to carcinoma of the lung among workers in the metalliferous mines in Saxony, quoted by Dr. R. King Brown, the following extract from the third edition of Osler's Principles and Practice of Medicine (1898, p. 664) is of interest:—

> "It is a remarkable fact that the workers in the Schneeberg Cobalt mines are very liable to primary cancer of the lungs. It is stated that in this region a considerable proportion of all deaths in persons over 40 are due to this disease."

At that time (1898, the date of the Curies' discovery of radium) the chief product of the mines was cobalt, and the presence of radium in the uranium pitch blende, if then barely recognised, was still less suspected of its part in the causation of lung cancer.

I am, Sir, yours faithfully,

J. GRAHAM FORBES.

London, S.W., Dec. 5th, 1931.

MEASUREMENT OF DEAFNESS IN SCHOOL-CHILDREN.

To the Editor of THE LANCET.

SIR,—I should hesitate to challenge the opinion of such an authority as Mr Macleod Yearsley, that "the examination of hearing by spoken numbers is valueless," were it not for the fact that tests on some 5000 children in the elementary schools in the London area have shown that numbers, as used in the way adopted in the routine tests by the gramophone audiometer, have proved to be entirely satisfactory, as judged by the results obtained.

These tests have revealed the important fact that some 6·5 per cent. of elementary school-children, between the ages of 8 and 15, are suffering from deafness in one or both ears, and need special medical examination and treatment. This figure is bad enough when we consider that the ordinary routine medical inspections of school-children, according to the latest figures of the chief medical officer to the Board of Education, only show 0·39 per cent. of children with defective hearing. Yet, were Mr. Yearsley correct in his opinion that the children guess the numbers, and so destroy the value of the audiometer test, the percentage suffering from deafness must be even greater than 6·5 per cent.

Experience has shown that attempts to guess are ineffective, and can be easily detected. I fear that Mr. Yearsley has overlooked the fact that, by the gramophone records used with the audiometer, numbers consisting of three digits for any given loudness of speech are used, and the chance of a child guessing them correctly is approximately 500 to 1 against. If single digits were used, the chance of a correct guess might be 9 to 1 against. Moreover, by the audiometer method there is no chance of lip reading by the child, and each ear is tested separately. The particular advantage of numbers consisting of three digits is that three distinct speech sounds are used for testing hearing at various intensities, and the children can easily write down the symbol for these sounds—namely, the digits—without having to bother about spelling a word, which would be the case if words were used.

For very young children, for example in age 4½ to 6, who cannot write, a record using some of the earliest words understood by a child has been prepared. In this case the child is asked to point to a picture of an object when the name is called, the names being transmitted by the headphones to the ear at varying, but standard, degrees of loudness. Even such young children readily coöperate in the test, as almost all of them have tried to listen to wireless through headphones.

Mr. Yearsley's second objection to the audiometer, because it drew attention to a case in which the cause of deafness was found to be wax, is in fact a recommendation. Already many children, with partial deafness due to wax, have had their hearing restored as a direct result of detection by the audiometer, but this would not have happened if the children had not been tested. The detection of hearing defects at the earliest possible age is of paramount importance, and then medical examination and treatment, and possibly special educational care, but the detection of impaired function is the first step towards a solution of the problem of deafness. Permanent damage to the hearing mechanism, and to the health of the child, may have occurred if the defect is not detected before it is obvious to the patient and also to school teachers.

I am, Sir, yours faithfully,

GUY P. CROWDEN.

London School of Hygiene and Tropical Medicine,
Keppel-street, W.C., Dec. 8th, 1931.

ASPHYXIA FOLLOWING INJECTION OF TARTAR EMETIC.

To the Editor of THE LANCET.

SIR,—In your issue of Oct. 10th, in a report of a discussion on the problems of asphyxia, cardiac puncture is mentioned as a chief method of resuscitation where the heart has ceased to beat during anæsthesia. On the day before I received that copy of THE LANCET I had to deal with the case described below.

The *patient*, a *female*, weighing 52 kg., came to the hospital and was found to harbour *Ascaris lumbricoides* in the intestine, and ova of *Schistosoma hæmatobium* in the urine. Clinical examination showed no contra-indications to tartar emetic treatment for the schistosomiasis, and this was begun by giving her one grain of the drug (6 per cent. solution) intravenously. Soon I was called to see her. I found her thrown on the floor unconscious; the face was cyanosed, the respiration slow, laboured, and superficial, the eyes wide open, and the corneæ insensitive. The pulse could not be felt in either radial or temporal arteries, the extremities were very cold, the heart could not be heard, either with the ear directly or with the stethoscope, and in fact the only sign of life was a very occasional feeble but snoring respiration, occurring not more than three or four times in a minute.

Artificial respiration was at once begun; a mouth gag was inserted and the tongue was drawn forward by a tongue forceps. One milligramme of strychnia and 0·5 c.cm. adrenalin (1 : 1000) were given hypodermically, and 0·2 c.cm. adrenalin intravenously. Ten minutes *later the* condition was still the same in spite of the artificial respiration. Strychnia hypodermically was repeated. The condition became even worse, the cyanosis was severe, and the respirations fewer. Hot-water bottles were put to extremities and hot stupes *to the heart (præcordia)*, but without benefit.

At that moment I thought that the patient would surely *die in my hands*, so I gave her 0·2 c.cm. adrenalin solution (1 : 1000) *intracardiac* in the fifth intercostal space. As I took out the needle I put the stethoscope over the heart region, and, to my great relief, I heard the heart sounds *clearly*; epigastric pulsations became evident, though the pulse could not be *felt*. *After 20 minutes* adrenalin (0·2 c.cm.) was again given intravenously. Respirations became more frequent, the cyanosis less marked, and corneæ became sensitive. The progress was, however, very slow. Then she was given 1 c.cm. ether intramuscularly, and caffein 0·25 g., ephedraline 1 c.cm., and *rum 15 c.cm.* hypodermically. At last she vomited a purely bilious vomit and came to herself, after one and a half hours, in which she had given me a really rough time. Four hours later she left the hospital.

Of course I did not venture to continue the tartar emetic treatment. The cause of the condition must have been a specially marked idiosyncrasy to tartar emetic, as I have not encountered such symptoms in about four years' practice in which I have given about 120,000 injections of this drug.

I am, Sir, yours faithfully,

A. FAKHRY,

P.M.O. Bilharzia and Ankylostoma Hospital,
Kafr-El-Zayat, Egypt.

Nov. 1st, 1931.

ANÆSTHETISTS IN THE UNIT SYSTEM.

To the Editor of THE LANCET.

SIR,—I am glad to see that the question of payments to anæsthetists attached to surgical professorial units has been raised. Dr. Howard Jones has, if anything, understated the case. At most hospitals where this system obtains, the "Unit" operates in the mornings, so depriving the anæsthetist of his usual time for private work. In addition to this, the operations are frequently of a difficult and prolonged character, rendering substitutes in the form of house surgeons or resident anæsthetists undesirable. In most cases the surgeons of the unit have full-time hospital appointments, so that no recompense from additional private work can be expected. Why then is the anæsthetist the only unpaid member of the team?

It speaks well for the loyalty of anæsthetists to their hospitals that the present system has worked at all, but this is no reason why the exploitation should continue. It is of course quite possible that the whole professorial unit system will be abandoned, as has already been done in the case of one large hospital in London, but while it continues the anomaly of the unpaid anæsthetist should be rectified without further delay.

As it would obviously be undesirable to single out one particular hospital in this matter I ask leave to sign myself

Yours faithfully,

"LETHE."

Nov. 30th, 1931.

PAY PATIENTS AT NEWCASTLE.—Since the pay-bed section of the Victoria Infirmary, Newcastle-on-Tyne, was opened six months ago the 80 beds have been constantly occupied.

OBITUARY

VINCENT DORMER HARRIS, M.D., F.R.C.P.Lond.

Dr. Vincent Harris, who died at Milford-on-Sea on Nov. 27th in his eighty-first year, had been living there for many years in retirement after a professional life of remarkable activity. Born in Bristol, and always retaining a touch of the west country speech and deliberation, Vincent Harris was educated at St. Bartholomew's Hospital, where he was intimate with a group which included Lauder Brunton, Norman Moore, Samuel West, D'Arcy Power, and Percy Kidd. He qualified in 1874, going on to take in rapid succession all the higher medical qualifications. For 14 years he remained attached to St. Bart.'s, first as ophthalmic house surgeon, then as house physician to Dr. James Andrew, later as demonstrator of physiology and casualty physician, only narrowly missing getting on the full staff on the medical side. His time was filled with coaching and writing, for he assisted Mr. Morrant Baker to edit several editions of Kirkes's Physiology, collaborated with D'Arcy Power in a manual for the physiological laboratory which was the standard work of its time, and examined for many years at the Conjoint examinations. In 1876 he was elected to the staff of the Metropolitan Hospital, in the following year to that of the West London Hospital, and in 1878 he began the association with the City of London Hospital for Diseases of the Chest, which lasted until his retirement in 1904. His active professional life was indeed largely bound up with his work at this hospital, to which he was greatly attached. His handbook, in collaboration with E. C. Beale, on the treatment of pulmonary consumption, contained the fruits of his experience there, but even so his interests were perhaps more concerned with the administrative than with the clinical side of hospital work. He excelled on committees, and to his wise counsel and unremitting labours the City of London Hospital owes much. The same is also true of his association with the National Hospital at Ventnor, which covered a period of 12 years.

DR. VINCENT HARRIS.

His retirement was partly owing to the hæmaturia from which he occasionally suffered and from which he eventually recovered. At Milford he became a justice of the peace and acted as a sort of local referee on all matters of municipal importance. He did not at once give up entirely his consulting work, for as a physician he was highly valued not only for his skill and judgment, but because of his thoroughness and painstaking. He was essentially an upright man, a loyal friend and colleague, a man of peace, even-tempered to a degree. Dr. Sainsbury, who gives us many personal details, adds "I cannot recall seeing him ruffled."

CHARLES ALBERT LEEDHAM-GREEN,

M.D. Heidelb., Ch.M. Birm., F.R.C.S. Eng.

Mr. Leedham-Green, whose death took place on Nov. 29th at Padstow, Cornwall, was associated for the greater part of his professional life with the Birmingham School of Medicine. Son of the Rev. Richard Green, at one time Principal of Didsbury Wesleyan College, he was educated in London and received his early medical training in Birmingham. After graduating in 1891 he continued his studies in Germany, first at Göttingen, and later at Heidelberg, where he obtained the degree of M.D. in the same year as the F.R.C.S. Eng. Returning to Birmingham he was appointed surgeon to out-patients at the Queen's Hospital in 1897, and three years later he went to South Africa as a civil surgeon, but contracting typhoid fever soon after arrival he was invalided home. In 1906 he became full surgeon to the Queen's Hospital, a position which he held until 1921, when he retired on account of his health, and was appointed consulting surgeon. He held a similar position in other hospitals of the district, and for some years before his retirement he was joint professor of surgery in Birmingham University. At the outbreak of the Great War he was mobilised with the rank of major and placed on the staff of the First Southern General Hospital.

MR. LEEDHAM-GREEN.

From the outset Mr. Leedham-Green displayed qualities which ensured rapid advancement in his profession. He was fortunate in the moment at which he entered surgical practice, and in a very few years he became one of the leading surgeons in the Midlands, and had acquired a reputation which attracted to him patients from a very wide area. He had a commanding presence, complete confidence in himself, and the capacity to communicate that confidence to medical practitioners and their patients. He had an unusual mind, and many of his ideas were of a novel character and of great practical value. He studied thoroughly any branch of surgery in which he was interested, and made himself an expert in it. His skill as an operator was of the highest order, notably in disease of the thyroid and in genito-urinary surgery, and he was one of the pioneers in the use of the cystoscope and in ureteric catheterisation. He made extensive use of various types of regional and local anæsthesia. Amongst other investigations was one on sterilisation of the hands, which was published in book form. The conclusion arrived at, that methylated spirit is a better disinfectant than any other antiseptic preparation that can be used in such a strength as will not damage the skin, led to the abandonment of the elaborate ritual that was then in vogue. He also contributed the article on gonorrhœa to Choyce's "System of Surgery," and in the medical journals gave numerous accounts of new technique and methods of treatment which bore witness to an inventive mind.

To his colleagues Mr. Leedham-Green was a constant stimulus. Having mastered in Germany the methods of aseptic surgery, and having developed there a talent for grasping the principles of his art, on his return he set about reforming whatever to his mind was erroneous in method, equipment, or management. His surgical enterprise and courage, always guided by unwearying care, quickly justified the optimism which gave hope and trust to his patients. Whilst he was quick in decision, and positive, even a little impetuous, in manner, he would in consultation patiently and quietly discuss the findings and give his reasons. But, one of his colleagues adds, he had no patience with slowness or indecision. To his juniors he was always ready to give a helping hand. He was a great reader of professional literature, and a tireless visitor to surgical congresses at home and abroad.

As a teacher he was not quite a success. The impress upon his mind made by his long stay on the Continent and his love of German literature and educational methods, made it difficult for the students to understand his lectures and line of thought. Those however who were privileged to act as his dressers and house surgeons, and to be in close personal contact with his work, were inspired and enthusiastic, and these posts were keenly sought after by the best students. His early retirement from the hospital and university, and shortly afterwards from active practice, caused wide regret both inside the medical school and outside it.

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS.

MEDICINE IN INDIA.

In the course of a debate on Indian Policy in the House of Commons on Dec. 2nd and 3rd, Dr. O'DONOVAN said that there were occasions when the sons of Hippocrates must raise their voices and tell politicians of all colours that no votes for political liberties were of the slightest value to dead or dying men. If there was one thing in which this country should take great pride it was the service which the medical profession had rendered to their Indian brothers. He said as a doctor that without distinction of race or colour, and without distinction of political outlook, the one great boon that England and Western civilisation had given to India had been the boon of life. One disease that almost every Anglo-Indian suffered from years after his return, a disease which swept through India generation after generation, carried by an insect so small that it could be destroyed between two fingers, was malaria. So potent was malaria that it reduced fertile plains back to the wild jungle, and reduced the strength of man to something subhuman, so that he could no longer contest for life with the forces of Nature. It was entirely due to white medicine and medicine taught in the schools of Europe that India saw a prospect of being freed from that great scourge. There was another appalling disease that rendered men unfit for work, or fit only to die in a ditch, or to live on the charity of their fellows. He referred to hookworm disease, which in some parts of India afflicted from 60 to 70 per cent. of the population. That disease had been the subject of study and investigation in the British and Continental schools of medicine, but to the study of that disease his Indian colleagues had practically contributed nothing. Hon. Members would also remember the dysenteries which laid men low. In the Royal Society of Medicine in its tropical section, and in the Tropical Hospital in Endsleigh-gardens, these diseases were studied and the benefit of that research was at the disposal of every Indian hospital. Were English medicine and the English connexion to be sharply cut, and were the only rights to be safeguarded the rights of political liberty, the only people who would suffer would be the Indians.

LEPROSY CHOLERA. TUBERCULOSIS.

Might he call attention to the conditions of the lepers? They had heard of the untouchables, but there were tens of thousands of untouchables to whom no politician would give the touch of a helping hand; those of whom the old Psalmist said: "They have hands but cannot touch; they have feet but cannot walk; they have eyes but they cannot see." But these people had understanding. Leprosy could be controlled, and if modern medicine and medical research were allowed their full play leprosy could be abolished. The research upon leprosy was initiated in Western civilisation. It was one of the obligations which we owed to the Indians that nothing should be hastily done to amputate the beneficial connexion between Western medicine and Indian traditions. The ghastly disease of cholera was most prevalent in India. Indian medicine in its history was completely empty of any records of the study, investigation, and the cure of cholera. Because of that disease and the investigation of it many of his professional brethren had died, and many more doubtless would die, and die gladly, and it was sad that in the White Paper issued by the Government, and in the Round Table Conferences, the work of the medical profession should be almost unrecorded. (Cheers.) Another disease which was as prevalent in India as in Britain was tuberculosis. It was quite likely that its great prevalence in India was due to the system of enclosing their womenkind; the custom of centuries which led to stunted growth, early death, and death in childbirth. That custom would not be broken b politicians, and he feared it would not be broken b missionaries. It could only be broken by a great increase in medical education throughout the Indian Empire. One of the most extraordinary features of the situation was the keenness of Indian students to come to study in England; the mother and mistress of the teaching of medicine in these modern days. So numerous were the Indian medical students that the Deans of our medical schools were hard put to it to find places for them. That was proof that we had much to give to India, and there was a great duty upon politicians to do nothing by playing down to the politics of the healthy to prevent this help being freely offered. Although he had never been to India, the diseases of that country had been impressed upon his mind and upon the minds of his medical colleagues since their earliest professional days. Malaria was known in the days of Hippocrates, and among those who had studied it were Sir Ronald Ross and Sir Patrick Manson. So intimate was the knowledge which the London medical schools had of the medical needs of India that he felt that he might speak on the subject not as a stranger, but as one to whom these things were an everyday matter. Politics were mere phantoms unless they were

University of Bristol.

At recent examinations the following candidates were successful:—

FINAL EXAMINATION FOR M.B., CH.B.

Part I.—S. B. Adams, A. J. Board, Violet Fry, Winifred M. Hill, Aldyth D. Jones, Gwladys R. Llewelyn, H. E. Pearse, Frances E. Powell, and Mary G. Thomas.

Part II.—F. W. A. Fosbery, J. A. Kersley, A. J. B. Miall, and S. C. Wake. In Group I. (Completing Examination): O. J. P. Bollon. In Group I. only: A. C. Price.

FINAL PROFESSIONAL EXAMINATION FOR L.D.S.

Nathanial Miller and H. L. Saunders.

University of Birmingham.

The annual dinner of the Birmingham Medical School will be held at the Grand Hotel, Birmingham, on Jan. 28th, 1932, at 8.15 P.M. A presentation will be made to Prof. Leonard Gamgee on his retirement from the chair of surgery.

University of Durham.

Sir Robert Bolam, F.R.C.P., has been appointed a pro-vice-chancellor of the University.

Royal College of Physicians of Edinburgh.

At the annual meeting of the College, held on Dec. 3rd, Dr. Robert Thin was elected President. The following were elected to form the Council for the ensuing year:—Sir Norman Walker, Dr. R. A. Fleming, Dr. Wm. Fordyce, Dr. Edwin Bramwell, Dr. Edwin Matthew, and Dr. A. Fergus-Hewat. Sir Norman Walker was nominated vice-president. At an extraordinary meeting held after the College meeting, Dr. G. Lovell Gulland and Dr. Fordyce were elected representatives of the College on the board of management of the Royal Infirmary for the ensuing year. Mr. J. W. Dowden, President of the Royal College of Surgeons of Edinburgh, was elected an honorary Fellow of the College.

National Council of Nurses of Great Britain.

Mrs. Bedford Fenwick, the president, took the chair at the annual meeting of the Council, held on Nov. 25th at the rooms of the Medical Society of London. Miss M. S. Cochrane, R.R.C. (Charing Cross Hospital), was elected vice-president; and Miss R. E. Darbyshire, R.R.C. (University College Hospital), and Miss E. T. Bickerton, R.R.C. (Prince of Wales' General Hospital, Tottenham), were elected directors.

British Institute of Radiology.

The annual dinner of the British Institute of Radiology incorporated with the Rontgen Society was held on Dec. 4th at the Trocadero Restaurant, London, the President of the Institute, Dr. A. E. Barclay, being in the chair. In proposing the toast of the Institute, Mr. W. E. Schall spoke of the valuable liaison it provided between the technical manufacturer and the working radiologist. For any qualification or diploma in radiology, he said, close study was to-day needed if the work in X ray departments was to be of a satisfactory nature. He thought that there should be radiological societies and that the meetings at them should be confidential, for discussions in this manner would be rendered more valuable, while a central journal could be employed to inform other countries of the work that was going on. Dr. Barclay, in reply, pointed out that a great vista of possibility was opening up before the Institute, so that coöperative work would make it truly representative of British radiology. He read a telegram from the American Roentgen Society congratulating the Institute on its progress, and at the close of his speech presented the Mackenzie Davidson medal to Prof. Hans Holfelder of Frankfurt. The toast of the Guests was submitted by Dr. Stanley Melville, who adjudged the merits of the various visitors, and sentenced them to different penalties in accordance with the qualities attributed to them. The toast was replied to by Sir Walter Fletcher, who said that the development of the Institute, as representing the new science of radiology, had deeply interested the Medical Research Council ever since the formation of that body. He testified to the necessity of such an Institute by describing the rapidity with which knowledge had grown in connexion with the science. A tumultuous cataract of new wisdom had arrived, he said, presenting many complex forms, and the Institute was discharging work of the highest value in promoting the growth of radiology and organising the resulting knowledge as a craft and a science. Sir Thomas Purves, chief of the Post Office Engineering Department, and Prof. G. E. Gask also replied.

Among the guests present were Sir Thomas Horder, Mr. G. Shearer, D.Sc., Mr. G. L. Winch, Mr. Herbert Tilley, Prof. Lloyd Hopwood, Dr. W. M. Levitt, Prof. Woodburn Morison, and Mr. W. V. Mayneord. The speeches were interspersed pleasantly with the rendering of old English songs by Miss Phyllis Scott and Mr. Rorke.

Royal Faculty of Physicians and Surgeons of Glasgow.

At a meeting of the Faculty on Dec. 7th, the following were admitted to the Fellowship: David Riddell Campbell, Malcolm Carfrae Douglas, John Shaw Dunn, Gilbert Garrey, James Livingstone Loudon, Alexander Miller, Ellen Brown Orr, and Albert Arthur Fitzgerald Peel.

Royal College of Physicians and Surgeons of Canada.

The second annual meeting of the College was held at Ottawa on Nov. 19th, with Dr. J. C. Meakins, the President, in the chair. About 100 Fellows attended, and with their wives were entertained in the evening by the Governor-General and Lady Bessborough. The newly elected President is Dr. F. N. G. Starr, of Toronto. Dr. W. T. Connell, of Kingston, becomes vice-president in the section of medicine, and Dr. P. C. Dagneau, of Quebec, vice-president in the section of surgery. Dr. T. C. Routley, of Toronto, remains registrar-secretary.

College of Physicians of Philadelphia.

Alvarenga Prize.—The next award of this prize, amounting to about 300 dollars, will be made on July 14th, 1932. Essays on any subject in medicine will be considered, provided they have not appeared in print in any form, and have not been presented elsewhere in competition for a prize. They must be in prescribed form, and must be received by the secretary of the College by May 1st.

The Alvarenga prize for 1931 has been awarded to Dr. Edgar S. J. King, Melbourne, Australia, for an essay on the Nature of the Stroma of the Ovary.

International Congress of Tropical Medicine.

Owing to the present economic crisis the Dutch Government feels itself unable to maintain its promise of financial aid for the second International Congress of Tropical Medicine, which was to have been held in Holland from Sept. 12th to 17th, 1932. The Congress has accordingly been postponed until the situation improves.

Week-end Courses on Disorders of Childhood.

As already announced, a post-graduate course on Common Disorders of Childhood and their Treatment will be given at the Hospital for Sick Children, Great Ormond-street, London, W.C., on Saturday, Dec. 12th (9 A.M. to 4 P.M.) and Sunday, the 13th (10 A.M. to noon). It is intended primarily for those in general practice, and there will be no fee for attendance.

Extension of Derbyshire Children's Hospital.

The Duchess of Rutland recently opened enlargements of this hospital comprising two new medical wards and a nurses' home which have cost £20,000.

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY, Dec. 14th.—5 P.M., UNITED SERVICES. Paper: Surg.-Lt. Comdr. A. E. Phillips: Recent Research Work in Deep Sea Diving. At 8.30 P.M., Reception in the Library by the President and Mrs. Watts Eden. At 9.15 P.M., a film "The Roof of the World" will be shown.

TUESDAY.—5.30 P.M., GENERAL MEETING OF FELLOWS. Ballot for election to the Fellowship.

WEDNESDAY.—5 P.M., COMPARATIVE MEDICINE. Discussion: The Comparative Pathology of Tumours. Openers: Dr. A. L. Sheather, Dr. W. Cramer, Dr. S. L. Baker, and Mr. J. R. M. Innes.

THURSDAY.—5 P.M., DERMATOLOGY. (Cases at 4 P.M.) Dr. A. M. H. Gray: 1. Scleroderma in a Tuberculous Patient. Dr. F. Parkes Weber: 2. Urticaria Pigmentosa in an Adult. 3. Cutis Verticis Gyrata. Dr. W. N. Goldsmith: 4. Leiomyoma. Dr. W. Knowsley Sibley: 5. Seborrhœic Warts and Superficial Rodent Ulcers.

FRIDAY.—5.30 P.M., PHYSICAL MEDICINE. Prof. A. V. Hill: The Liberation of Energy by Muscle. (Samuel Hyde Memorial Lecture.)

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY, Dec. 14th.—8.30 P.M., Discussion on X Rays in the Diagnosis of Thoracic Disease, to be introduced by Dr. P. J. Kerley, Dr. F. G. Chandler, and Mr. J. E. H. Roberts.

HUNTERIAN SOCIETY.

THURSDAY, Dec. 17th.—7.15 P.M., Dinner Meeting at Simpson's Restaurant, Bird-in-Hand-court, Cheapside, E.C. Discussion on Oral Sepsis (Openers: Prof. John Eyre, Dr. W. S. C. Copeman, and Mr. C. R. Rudolf).

OCIETY OF MEDICAL OFFICERS OF HEALTH, 1, Upper Montague-street, W.C.

FRIDAY, Dec. 18th.—5 P.M., Discussion on the Mental Treatment Act, 1930. (Openers: Sir Hubert Bond and Dr. P. K. McCowan.)

HELSEA CLINICAL SOCIETY, Hotel Rembrandt, Thurloe-place, S.W.

TUESDAY, Dec. 15th.—8.30 P.M. (preceded by dinner at 7.30 P.M.), Mr. A. Lawrence Abel: The Cinema in relation to Modern Medicine and Surgery.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Dec. 14th, to SATURDAY, Dec. 19th.—ROYAL WATERLOO HOSPITAL, Waterloo-road, S.E. Tues., Post-graduate demonstration by Dr. Bernard Myers on Pulmonary Affections of Childhood, at 2 P.M.—MILLER GENERAL HOSPITAL, Greenwich-road, S.E. Thurs., Post-graduate demonstration by Mr. Reginald Ledlie on *Varicose Vein Injections*, at 11 A.M.

EST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

MONDAY, Dec. 14th.—10 A.M., Gynæcological Wards; Genito-urinary Operations; Skin Department. 11 A.M., Surgical Wards. 2 P.M., Surgical Wards: Medical, Surgical, Eye, and Gynæcological Out-patients.

TUESDAY.—9.30 A.M., Operations. 10 A.M., Medical Ward Demonstration; Dental Department. 11 A.M., Throat Operations. 11.30 A.M., Surgical Demonstration. 2 P.M., *Operations*; *Medical, Surgical*, and Throat Out-patients.

WEDNESDAY.—10 A.M., Medical Wards; Children's Medical Out-patients. 2 P.M., Medical, Surgical, and Eye Out-patients. 2.30 P.M., Gynæcological Operations. 4.45 P.M., Venereal Diseases Demonstration.

THURSDAY.—10 A.M., Neurological Department. 11.30 A.M., Fracture Demonstration. 2 P.M., Medical Surgical, Eye, and Genito-urinary Out-patients. 2.30 P.M., Operations.

FRIDAY.—10 A.M., Medical Wards, Skin Department, Dental Department. 2 P.M., *Medical, Surgical*, and Throat Out-patients. 2.30 P.M., Operations.

SATURDAY.—9 A.M., Throat Operations. 10 A.M., Medical Wards. Surgical Out-patients: Children's Medical Out-patients.

NG'S COLLEGE HOSPITAL MEDICAL SCHOOL, Denmark-hill, S.E.

THURSDAY, Dec. 17th.—9 P.M., Mr. Yates Bell: Recent Advances in Urology.

NDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 9, Leicester-square, W.C.

TUESDAY, Dec. 15th.—5 P.M., Dr. S. E. Dore: Erythemato-Squamous Eruptions.

THURSDAY.—5 P.M., Dr. I. Muende: Pathology Demonstration.

MARK'S HOSPITAL, City-road, E.C.

THURSDAY, Dec. 17th.—4.30 P.M., Mr. E. T. C. Milligan: Procto-Colitis.

IVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL, University-street, London, W.C.

MONDAY, Dec. 14th.—4.15 P.M., Dr. J. S. Prendergast: History of Typhoid Fever.

YAL NORTHERN HOSPITAL, Holloway-road, N.

TUESDAY, Dec. 15th.—3.15 P.M., Mr. Hamilton Bailey: The Breast.

UTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James' Hospital, Ouseley-road, Balham, S.W.

WEDNESDAY, Dec. 16th.—9 P.M., Mr. Leonard Phillips: A Tour in Russia. (Cinematograph lecture.)

AMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.

WEDNESDAY, Dec. 16th.—4 P.M., Mr. T. W. Letchworth: Toxic Amblyopia and Retrobulbar Neuritis.

PAUL'S HOSPITAL, Endell-street, W.C.

WEDNESDAY, Dec. 16th.—4.30 P.M., Dr. Jenner Hoskin: Medical Complications of Prostatectomy.

NTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY, Dec. 18th.—4 P.M., Mr. Lowndes Yates: Complications of *Catarrhal Inflammation* of the Nose.

OYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.

WEDNESDAY, Dec. 16th.—4 P.M., Sir Pendrill Varrier-Jones: Welfare of the Tuberculous Citizen. (Lantern illustrations.)

ANCHESTER ROYAL INFIRMARY.

TUESDAY, Dec. 15th.—4.15 P.M., Dr. T. H. Oliver: Diet.

OYAL INFIRMARY, Glasgow.

WEDNESDAY, Dec. 16th.—4.15 P.M., Mr. D. Duff: Surgical Cases.

ACULTY HALL, St. Vincent-street, Glasgow.

TUESDAY, Dec. 15th.—4 P.M., Prof. A. Young: Open Operative Treatment of Certain Common Fractures.

Vacancies

For further information refer to the advertisement columns.

Birkenhead County Borough.—Res. Asst. M.O. £350.

Birmingham, Dudley-road Hospital.—Gynæcologist and Obstetrician. £750.

Birmingham, Midland Hospital, Easy-row.—H.S. £130.

Brighton, Royal Alexandra Hospital for Sick Children.—H.S. £100.

Brighton, Royal Sussex County Hospital.—H.S. £150. Also Cas. H.S. £120.

Bristol General Hospital.—Two H.P.'s. Two H.S.'s. Res. Obstet. O. H.S. to Spec. Depts. Each at rate of £80. Also Cas. H.S. At rate of £100.

Bucks C. C.—Asst. County M.O. and M.O.H. £800.

Burnley, Victoria Hospital.—Two H.S.'s. Each at rate of £150.

Calcutta Medical College.—Prof. of Pathology, &c. Rs.800 a month.

Cambridge.—George Henry Lewis Studentship. £250.

Central London Throat, Nose, and Ear Hospital, Gray's Inn-road, W.C.—Clin. Assts.

Dreadnought Hospital, Greenwich.—Physician.

East London Hospital for Children, Shadwell, E.—Res. Med. Reg. £150.

Edinburgh Royal College of Physicians.—Kirk Duncanson Fellowship for Medical Research. £150.

Hospital for Sick Children, Great Ormond-street, W.C.—Part-time Jun. Cas. O. At rate of £150.

Hospital for Tropical Diseases, Endsleigh-gardens, W.C.—Surg.

Hospital of St. John and St. Elizabeth, 60, Grove End-road, N.W.—Res H.P. At rate of £100. Also Surg. to Ear, Nose, and Throat Dept.

Hull, Beverley-road Institution.—Asst. M.O. £300.

Hull Royal Infirmary.—Third H.S. At rate of £150.

Indian Medical Service.—European Officers.

Infants Hospital, Vincent-square, Westminster.—H.P. At rate of £75.

Ipswich, East Suffolk and Ipswich Hospital.—Cas. O. £120.

Khartoum, Wellcome Tropical Research Laboratories.—Bacteriologist. £E.660.

London Lock Hospital, 91, Dean-street, Oxford-street, W.—H.S. At rate of £200.

London University.—Geoffrey Duveen Travelling Studentship in Oto-Rhino-Laryngology. £450.

Manchester, Ancoats Hospital.—Med. Reg.

Manchester Ear Hospital, Grosvenor-square, All Saints.—H.S. £120.

Manchester Royal Infirmary.—M.O. for Genito-Urinary Section. Also Three Asst. M.O.'s.

Manchester, St. Mary's Hospital.—H.S. for Whitworth Park Branch. At rate of £50.

Maudsley Hospital, Denmark-hill, S.E.—Second Asst. M.O. Also Asst. M.O. £625 and £175 respectively.

Miller General Hospital, Greenwich-road, S.E.—Cas. O. At rate of £150.

North-Eastern Fever Hospital, St. Anne's-road, Tottenham, N.—Asst. M.O. £350.

North-Western Fever Hospital, Lawn-road, Hampstead, N.W.—H.P. £80.

Peckham House, 112, Peckham-road, S.E.—Jun. Asst. M.O. £300.

Poplar Hospital for Accidents, East India-road, Poplar, E.—Second Res. O. £175.

Radium Institute, Riding House-street, W.—H.S. At rate of £150.

Rotherham Hospital.—Cas. H.S. £150.

Rotherham, Oakwood Hall Sanatorium.—Asst. M.O. £300.

Royal Army Medical Corps.—25 Commissions.

Royal Free Hospital, Gray's Inn-road, W.C.—Clin. Assistantships in Spec. Depts.

Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—H.P. At rate of £100.

St. Mary's Hospital for Women and Children, Plaistow, E.—Hon. Clin. Assts.

St. Mary's Hospital, W.—Med. Supt. £400.

St. Peter's Hospital for Stone, &c., Henrietta-street, Covent Garden, W.C.—Hon. Asst. Surg. Also Clin. Assts.

Salford City Infectious Diseases Hospital.—Jun. Asst. Res. M.O. £200.

Salisbury General Infirmary.—Two H.S.'s. Each £150.

Sheffield, Jessop Hospital for Women.—Asst. H.S. At rate of £100.

Sheffield Royal Infirmary.—Ophth. H.S., Asst. Aural and Ophth. H.S., and Asst. Cas. O. Each at rate of £80.

Southampton, Royal South Hants and Southampton Hospital.—Two H.S.'s and Cas. O. Each at rate of £150.

South London Hospital for Women, Clapham Common, S.W.—Clin. Assts.

Southport General Infirmary.—Sen. H.S. £200.

Stoke-on-Trent, North Staffordshire Royal Infirmary.—Orthopædic Surg. £500.

Woolwich and District War Memorial Hospital, Shooters hill, S.E.—H.P. and H.S. Each at rate of £100.

The Chief Inspector of Factories announces vacant appointments for Certifying Factory Surgeons at Grays (Essex) and Blackpool (Lancs).

The Home Secretary is considering the appointment of an ophthalmic specialist to be a Medical Referee under the Workmen's Compensation Act for cases arising in the district of the County Courts in Circuits No. 59 and 57, Cornwall and South Devon. Applications should reach the Private Secretary, Home Office, Whitehall, London, S.W., not later than Dec. 31st.

NOTES, COMMENTS, AND ABSTRACTS

SURGERY OF THE URINARY ORGANS.

SIXTY YEARS OF RETROSPECT.*

BY G. BUCKSTON BROWNE, F.R.C.S. ENG.,
A TRUSTEE OF THE HUNTERIAN COLLECTION; HONORARY GOLD MEDALLIST OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

LITHOTRITY.

WHEN, in 1874, Sir Henry Thompson invited me to assist him in his private practice all small bladder stones were crushed and sometimes washed out. Large stones, say up to an ounce and a half, were crushed and removed in several sittings, and very large stones were removed by perineal lithotomy. Mr. Joseph Clover had published an account of his rubber evacuator and tubes for use after lithotrity in THE LANCET (1866, i., 515), but he was not an operator himself—only, as an anæsthetist, a witness of stone operations—and his apparatus had not made much headway. When I began to operate for stone in 1875 I employed Clover as anæsthetist, and carried his evacuator to all operations. Lithotrity was born in pre-anæsthetic days, and the many-sitting operations were practised because conscious patients can bear only a few minutes' pain, and the process of pumping fluid in and out of the bladder is well nigh intolerable. Such was the position up to the autumn of 1878, when Prof. Bigelow, of Boston, published his great inspiration, "Why not crush and wash out all crushable stones at one operation?" He modified—he did not invent—lithotrites, tubes, and evacuator. Some of his modifications are now abandoned, but Bigelow is undoubtedly the father of the modern operation of litholapaxy, or crushing and washing out the stone at one operation or sitting; while the operation would never have been possible had it not been for the invention by Clover of his rubber evacuating bottle.

At this time—i.e., all through the 'seventies—large stones were removed by perineal, generally lateral, lithotomy. We followed the traditions of Cheselden. The high or suprapubic road into the bladder had been abandoned by that great surgeon. It is obvious that a careful suprapubic dissection on a struggling unanæsthetised patient—perfectly unable to bear a distended bladder—must have been highly dangerous, even wellnigh impossible. The peritoneum must often have been fatally injured, and no wonder the low or perineal route was chosen by Cheselden. The operation was often over in a minute or so, but accidents were not unknown—perforated bladder, wounded rectum, and frequently profuse hæmorrhage. No surgeon undertook his first lateral lithotomy without anxiety, or even trepidation.

SUPRAPUBIC CYSTOTOMY.

The year 1880 was the annus mirabilis of my surgical life, not by reason of any great discovery, but by a sound and scientific return to an old surgical method—suprapubic cystotomy. Under the influence of Cheselden and his followers, suprapubic cystotomy had fallen into complete disrepute. It was never heard of. In 1878, however, it occurred to Dr. John George Garson, an assistant in the Hunterian Museum of the Royal College of Surgeons of England, to distend the rectum and to make frozen sections of the parts above the pubes. He read his memoir before the German Surgical Congress in Berlin in April, 1878. Garson was not an operating surgeon, but there was present at the Congress a keen and enterprising surgeon, Dr. Petersen, of Kiel. He at once saw the importance of Garson's work, and invented the rubber rectal bag, known by his name, for distending the rectum and pushing up the bladder above the pubes before making a suprapubic cystotomy. Petersen's bag opened up an entirely new field of urinary bladder surgery; now, for the first time, could vesical tumour be accurately discovered and removed; encysted calculi, hitherto entirely irremovable, could be easily discovered and lifted out of their containing sacs; the post-prostatic pouch fully explored; and the encysted prostate attacked. Sir Henry Thompson, the first to remove a vesical tumour, realised at once the enormous advantages the suprapubic route possessed over the perineal, and I was soon able to publish two cases in my own practice of successful removal of encysted calculi, cases which up to that time had been quite incurable. In 1891 I read before the Medical Society of London a paper on the post-prostate pouch, where stones easily escaped detection by the sound of one surgeon, while being found shortly after by another, and often leading to bitterness, reproach, and even to legal action. All the surgical difficulties and mysteries of the urinary bladder were cleared up by the revival of the high operation. For many years I carried Petersen's bag to my operations, but in time gave it up as unnecessary, clumsy, and disagreeable.

PROSTATECTOMY.

Many surgeons had tried, in cases where th prostatic urethra was obstructed, to remove th obstruction by operation. The galvanic cautery had actually been tried, but all had been in vain. In lateral perineal lithotomy large masses of enlarg prostate had inadvertently been removed, bu anæsthetics, antiseptics, and the suprapubic road int the bladder led Mr. Arthur Fergusson McGill (184 1890) of Leeds, to think of attacking the enlarg prostate, with finger, scissors, and forceps, from abov He did so with great success, and in 1889 publishe his results. I was the first to follow his example i London, and on March 6th, 1893, before the Medica Society of London, with Sir Jonathan Hutchins in the chair, I read two successful cases and showe one of prostatectomy. I said then, and have main tained ever since, that in certain cases it is a justifiable operation and sometimes perfectly successful, but that it is far too dangerous to be made an everyday routine operation. Just because a man has an enlarged prostate is not sufficient reason to subject him to the very grave risks of operation. We know that the prostate may be large without causing any difficulty in micturition, and it must never be forgotten that an enlarged prostate may atrophy. I have seen a catheter necessary for twelve months and then micturition completely re-established naturally.

And now, in conclusion, I feel compelled to walk upon very delicate ground. I am well aware that we possess surgeons (I should like to mention names, but it would be unfair, perhaps invidious) who have brought the art of prostatectomy to great perfection, and have had corresponding successes. I would speak with the humility and gentleness befitting an old man. We have had 40 years of prostatectomy, and I have lost a large number of friends and acquaintances who I am convinced would have prolonged their lives indefinitely had they been content to lead the catheter life which in the 'seventies and 'eighties had been brought to great perfection. The object of the prostatectomy is to restore the function of complete and natural micturition, and this happy result is frequently brought about, but by no means always attained. Mere recovery from the operation is not sufficient, for the recovery may be a very qualified one. In the first place the operation is dangerous. It involves a large dissection of a part of the body highly sensitive, and with which the rest of the body is nervously intimately connected. The patient himself has reached a time of life when the vital powers of healing are on the decline. Large veins are concerned, and frequently the urinary secretion is far from being an ideal lotion for a large wound. Patients often die immediately from hæmorrhage and from shock.

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* Abstract of a paper read before the Historical Section of the Royal Society of Medicine on Dec. 2nd, 1931.

UNDESIRED SEQUELS.

If these be avoided or recovered from, all is not yet plain sailing.

1. Natural micturition may not return.
2. Very troublesome urethral obstruction or stricture may result.
3. Painful phosphatic deposits may occur at the neck of the bladder.
4. The shock of the operation may be so severe that the patient may never again be the man he was, and often dies within a short period.
5. And, finally, troublesome suprapubic fistula and even vesico-rectal fistula are not unknown.

In the days before prostatectomy, a prostatic patient, or any other patient who from atony or paralysis failed to empty his bladder, had to learn to pass a catheter. Before the introduction of the soft catheter this was indeed a sad affliction, and when the use of a metal catheter by the patient himself was difficult, I have known the patient obliged to reside close to his doctor's house. During my life time the soft catheter has been brought by manufacturers, under the guidance of surgeons, to great excellence, and I myself have had something to do with perfecting a simple aseptic apparatus which enables a patient to be as active as he likes and yet have a pure catheter always at hand.

I have known busy surgeons, physicians (two with Royal appointments), busy practitioners, judges, explorers, sportsmen, sailors, and ministers of religion, who have led active, happy, vigorous lives while entirely dependent upon the catheter. I once had three judges on the bench, all pupils of mine, and indeed I remember one saying to me; "I much prefer this method to the natural one; before, I was disturbed every 20 minutes, now I am good for six or eight hours." At the present moment I have several friends busy and happy, one of great age, and one a distinguished golfer, quite resigned and content with the catheter life.

The cases where prostatectomy is a necessity are those rare ones where the middle lobe is very large, projecting into the bladder and causing intense irritation, and where catheterism is exceptionally difficult, or the patient unusually clumsy, blind or partially blind, or possessing only one hand.

"DUPLEX THERAPY."

In an address delivered before the Royal Society of Arts on Nov. 25th, Mr. G. G. Blake, M.I.E.E., described a form of treatment by diathermic and galvanic currents in combination, both currents being passed through the body at the same time by way of the same two electrodes. From this "duplex" treatment he claimed successful results in cases of gout, fibrositis, sprain, and even early arthritis, although in regard to the last-named he admitted it was not fair to speak of cure. Symptoms however had been eradicated, with relief of pain for long periods; a number of patients not requiring further treatment after an interval of nearly two years. Hundreds of similar cases treated by diathermy or ionisation, separately applied, before he hit upon the duplex treatment, had, he said, given results fairly good but not comparable with those obtained by the new method, either for speed, relief of pain, or lasting results. All the patients had been referred to him for treatment by various medical men. The electro-medical practitioner, who would like to know more exactly the types of arthritis that were submitted to the duplex treatment, will admit that the results as stated are remarkable. It remains however to explain how any treatment applied to the joints could produce such results in arthritis due to infection from a distant focus or to endocrine disturbance. The true value of any therapeutic agent must nevertheless be determined by its effects.

In the course of his demonstration, Mr. Blake showed that the diathermic current (which is alternating) is rectified when the electrodes are asymmetrical or do not make good contact. He has devised an instrument (which he calls a contactometer) to indicate on the galvanometer the amount of unidirectional current that flows when the rectification occurs. He pointed out the importance of good contact with the active electrode when the eye, for instance, is subjected to diathermy, and he believes that this contactometer would afford protection against burns during diathermic application to rectum, urethra, cervix, or other internal organ. It seems more likely however that damage would already be done when the contactometer gave evidence of it, and in any case correct application of electrodes should preclude damage. Mr. Blake also made some interesting remarks on the psycho-galvanic reflex which, when absent in cold-blooded subjects, may often be brought back by friction, radiant heat, or diathermy. His skilful and ingenious experiments illustrate the need for the physicist interested in biology in the investigation of the problems that confront the practitioner of physical medicine.

INQUIRIES.

I.

A boy of 15 and a girl of 16, living in a doctor's household in London, have not had measles, and are likely to be exposed to infection from attendance in one case at evening (L.C.C.) classes, in the other by visits as pupil teacher to elementary schools. Should they be partially immunised by convalescent serum over the peak period of risk of infection this winter?

The immunity conferred by convalescent serum is a passive one, and lasts for not longer than four weeks, possibly less. By giving a single dose of convalescent serum when the measles epidemic would be approaching its maximum, a person exposed to risk of infection could be protected during the period when the risk was greatest, and thus his chance of contracting measles during the course of the epidemic appreciably lessened. The period of protection could, of course, be prolonged by giving more than one injection of serum, spacing the doses at intervals of about three weeks, and since the serum is homologous there would be no risk of anaphylaxis. Whether or not it would be worth while minimising the risk of contracting measles in this instance by giving one or more doses of convalescent serum would depend largely on individual considerations. If, for reasons of health or on economic grounds, it was highly desirable that these two people should not contract measles, then it might be worth while giving them serum.

II.

A resident teacher in a Yorkshire nursery school, where there have been cases of diphtheria, is returning shortly to spend her holidays with her family in a south country county borough where there is scarcely any diphtheria prevalent. Should she submit herself to Schick test or faucial examination?

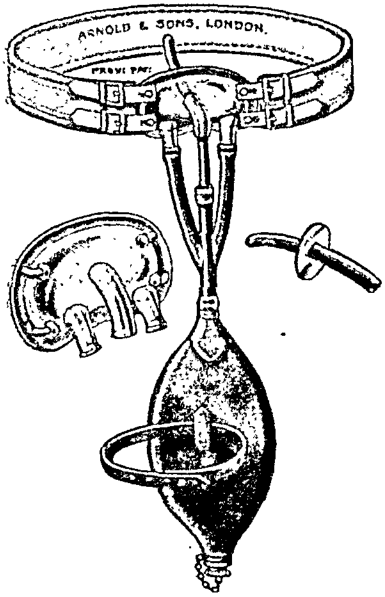
It would certainly be a good thing for this woman to submit herself to both Schick test and examination of the nasopharynx for diphtheria bacilli before returning to her family. Should the Schick test be negative, and the cultural reaction also negative, she would have the satisfaction of knowing that she was not liable either to infect others or to contract the disease herself. If the Schick reaction were negative and virulent diphtheria bacilli were present in the nasopharynx, then she should neither return to her family nor continue with her occupation until she ceased to be a carrier. On the other hand, a positive Schick test with a negative culture would also enable her to return to her family with a free conscience; but if she were likely to be exposed to infection on her return to work she would be well advised to be actively immunised, say with anatoxin, before doing so.

THE MEDICAL DIRECTORY FOR 1932.

THE eighty-eighth annual issue contains, as we noted last week, 445 more names than the previous issue, but of the seven sections into which the list of names is divided only four show an increase—viz., London + 41, Provinces + 301, Ireland + 3, Abroad + 143, while the other three show a decrease; Wales − 14, Scotland − 19, Services − 10. Otherwise the essential contents of the Directory are unaltered. In several places the type has been slightly rearranged with a certain economy of space, but it is difficult to improve on 87 years' experience. The medical report on British spas and seaside reports is particularly timely having regard to the embargo on foreign travel, and even in these hard times every practitioner who keeps up to date in his professional relations can scarcely afford to be without a copy of the work. The Directory is published by Messrs. J. and A. Churchill, at 40, Gloucester-place, London, W.1, and the price remains 36s.

THE ARNOLD TRIPLE FLOW SUPRAPUBIC URINAL.

THE appliance here illustrated consists of a kidney-shaped celluloid cap containing three outlets so arranged that no matter in what position the patient may be reposing, complete drainage may be effected. Provision is made not only for drainage by catheter, but also for the removal of any urine which may pass between the catheter and the abdominal walls. All three outlets are connected with a rubber bag fitted with a non-return valve which obviates any back flow. A special disc fitting holds the catheter in any desired position. The advantages claimed for the appliance are that the urine is immediately passed into the rubber bag; the patient may lie in various positions without fear of urine collecting; various sizes of catheter may be used; all parts can be removed and sterilised. An easily detached adjustable belt is fitted.



Suprapubic bag.

Messrs. John Bell and Croyden, in association with Messrs. Arnold and Sons and Savory and Moore, Ltd., 52, Wigmore-street, W., are the makers.

MORE ABOUT DOCTORS' WIVES.

WHEN summoned urgently to a patient who had had triplets, Dr. Plexus simply waved his hand and said, "Nature must be allowed to take her own course," and went on talking to Mrs. Murgatroyd. Rightly fearing the worst, his wife took a correspondence course in medicine and surgery, and when the crisis came was able to avert the dreadful Scandal of an Inquest by operating on the Lord of the Manor for appendicitis. "Except for trying to put on her gown back to front she hardly made any mistakes," and the patient "made an uninterrupted recovery and was as well as he had ever been except for some adhesions."

Readers of "Mrs. Dose, the Doctor's Wife," will recognise that here [1] we have another of Miss Joyce Dennys's diverting tales of medical practice. But even this opening story shows that in search of situations she has got much further away from every-day life. The new book is the fruit of imagination more than of observation, and to this extent it is a disappointing sequel.

None the less we meet many pleasant characters. Mrs. Heinstein, for instance, had enjoyed excellent health all her life, and liked to think of her inside as a round zinc tank, sometimes empty and sometimes full, but not complicated in any way, and of no conversational interest to herself or others. Mrs. Spatula circulated an advertisement for her husband, defied the General Medical Council, and organised a rebellion of doctors' wives. And poor Dr. Browne was "quite reasonably clever, though, of course, he was only a General Practitioner."

Among these and others the most touching figure perhaps is the Bad Wife who did wish she were a Better Wife for a Doctor. She was fond of gardening and reading books, and although she had a kind heart, was rather vague and dreamy. She sometimes forgot to smile at people in the street, "which is a very serious thing for a doctor's wife to do," but we are grateful to Miss Dennys for giving her story such a happy ending.

The illustrations are as good as before.

WANTED, TUBERCLE BACILLI.

Dr. W. M. Cumming, medical superintendent of Bradford City Sanatorium, Grassington, Yorkshire, writes as follows:—

"I am engaged in investigating the bacteriology of the tubercle bacilli to be isolated from the sputum in cases of pulmonary tuberculosis in which there is a definite history or other clinical evidence of a *previous* glandular infection. Such cases are not common, and I venture to beg the courtesy of your correspondence columns in order that I may ask if any tuberculosis officers, sanatorium superintendents, or others who have such cases under their care would be good enough to let me have specimens of sputum. It is not essential that tubercle bacilli be demonstrable microscopically, so long as the lung lesion is tuberculous. If anyone will send me a postcard I shall be very glad to send suitable container and cover."

Appointments

WALKENSHAW, T. R. D., L.D.S. Edin., has been appointed Hon. Consulting Surgeon to the Newcastle Dental Hospital.

WILSON, J. G., M.D., B.S. Lond., D.P.H., Medical Officer of Health for Dewsbury.

YULE, J., M.B., Ch.B. Glasg., D.P.H., M.O.H., County Borough of West Bromwich.

Workmen's Compensation Act: DOW, J. F., Ch.B. Manch., Medical Referee for Barrow-in-Furness, &c., County Courts, Circuit No. 3; and WILSON, A. G., M.B. Lond., for Doncaster, &c., Circuit No. 18.

Births, Marriages, and Deaths

BIRTHS.

BLOOM.—On Dec. 7th, 1931, at Cranford, Gerrards Cross to Barbara (*née* Owen), wife of G. F. Harrison Bloom, of 17, Welbeck-street, W. 1—a daughter.

DEATHS.

LEEDHAM-GREEN.—On Nov. 29th, at Trevone, Cornwall, Charles Leedham-Green, Ch.M., F.R.C.S., of Belsize Park-gardens, N.W., late Professor of Surgery, Birmingham University.

OLIVEY.—On Dec. 3rd, J. M. A. Olivey, M.R.C.S., L.R.C.P., of Pentrelew, Hamworthy, and of High-street, Poole, Dorset.

WOOD.—At St. James Hospital, Balham, on Nov. 28th, 1931, Jane Edith Wood, M.B., B.S. Lond., M.R.C.S. Eng., L.R.C.P. Lond., member of the resident staff, and daughter of the later Joseph Wood, Bradford, Yorks.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages and Deaths.

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[1] Repeated Doses. Written and illustrated by Joyce Dennys. London: John Lane, the Bodley Head, Ltd., 1931. Pp. 157. 5s.

ADDRESSES AND ORIGINAL ARTICLES

GASTRO-JEJUNO-COLIC FISTULA, WITH MEGALOCYTIC ANÆMIA SIMULATING SPRUE.

BY N. HAMILTON FAIRLEY, O.B.E., M.D.,
D.SC. MELB., F.R.C.P. LOND.,
ASSISTANT PHYSICIAN AND DIRECTOR OF PATHOLOGY, HOSPITAL FOR TROPICAL DISEASES, LONDON; LECTURER IN CLINICAL MEDICINE AND APPLIED PATHOLOGY, LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE;

AND

T. POMFRET KILNER, M.B. LOND. & MANCH.,
F.R.C.S. ENG.,
SURGEON TO THE HOSPITAL FOR TROPICAL DISEASES.

Gastro-jejuno-colic fistulæ usually originate from cancer of the stomach or colon, or follow the operation of gastro-enterostomy. Verbrugge, who reviewed the literature up to 1925, found that 202 cases of gastro-colic and jejuno-colic fistula had been recorded, and added 14 more cases from the Mayo Clinic. The chief clinical features in this series were marked wasting without apparent cause, abdominal discomfort or actual pain, eructations of foul gas, fæcal vomiting without evidence of obstruction, and intermittent diarrhœa. Finally, a syndrome of colonic obstruction was *not* uncommon, especially where the patient had previously undergone a gastric operation. It is interesting to note that anæmia *per se* did not attract special attention, and it is particularly from this viewpoint that the present cases are recorded.

Diarrhœa, which was often the first manifestation, was also the most constant clinical feature. The bowels generally acted two to three hours after food and often at night, and there were not infrequently 10 to 12 evacuations in the 24 hours. In appearance the stools were usually yellow in colour and acid in reaction, owing to the presence of fatty acids or hydrochloric acid. Strauss (1921) says that fatty stools are an early feature, and both he and Arons (1922) have stressed the importance of searching for fæcal fat in suspected cases. Undigested food in the fæces is much less frequently encountered than would be expected. Diagnostic aids include the use of colour *meals*, which appear rapidly in the stools, and radiography after a barium meal. The latter, however, is by no means invariably diagnostic, and Camp (1930) holds that gastro-jejuno-colic fistula may only be discernible by means of the opaque enema.

Under a grant from the Colonial Medical Research Council a special investigation on sprue is being undertaken at the Hospital for Tropical Diseases, Endsleigh-gardens, and owing to this fact the two following cases, which were in the first instance erroneously regarded as atypical and complicated sprue, have been worked up in considerable detail. Of special interest is the demonstration of gastro-jejuno-colic fistula associated with definite megalocytic anæmia responding adequately to liver extract and high protein diet, while the biochemical findings, being partly at least dependent on malabsorption, afford an instructive comparison with those met with in sprue.

The First Case.

A rubber planter, aged 42, was admitted to the Hospital for Tropical Diseases on Feb. 14th, 1930.

He had resided in Malaya for 20 years where occasionally he had slight attacks of malaria. There was a history of an appendicectomy in 1914, and of a gastro-jejunostomy for pyloric obstruction in March, 1926. For two or three months before the latter operation there was copious vomiting after meals; on occasions he had himself washed out his stomach to get relief. He described the vomitus as being so acrid that it would literally "kill grass." Though he improved considerably and reached 9½ st. after this operation, he has never felt really fit since, always having to be careful with his diet; pork and curry especially have caused acute abdominal discomfort.

The present illness commenced with diarrhœa in October, 1929, the bowels being opened seven to eight times daily, usually between midnight and 4 A.M. The stools were watery, light-brown, frothy, and foul. Lingual features were not troublesome, but his doctor in Malaya commented that his tongue was characteristic of sprue. Flatulence was at times present, but not indigestion. In Malaya the condition was diagnosed as sprue, and the patient was treated with milk diet, calcium, and parathyroid. The diarrhœa ameliorated under this régime and the stools became white and hard, but five weeks later it returned, 10 to 15 stools being passed in the early morning; there was ineffective control of defæcation. Meat treatment was now instituted and improvement followed, the motions decreasing to three to four daily, and being less white and frothy. On Jan. 17th, 1930, the patient sailed for England, but he relapsed on board ship following a meal of mushrooms and chicken. The bowels acted some ten times daily for six days.

On admission to hospital he complained of weakness, morning diarrhœa, flatulence, and loss of weight, from 10 to 8 st.

EXAMINATION.

He was pale and emaciated. The tongue was clean, very red and fissured on the dorsum, but the fungiform and filiform papillæ were not atrophied.

Thorax.—Nothing abnormal was noted in the heart or lungs. The blood pressure was low, 85 systolic, 53 diastolic.

Abdomen.—The scars of two previous abdominal operations were present, and the abdominal parietes were very wasted. *Abdominal distension* was present, and *coils of* small intestine were readily felt on palpation, while in the epigastrium, mid-way between the xiphoid cartilage and the umbilicus, a tender spot, not hyperæsthetic to pinprick, was elicited.

SPECIAL INVESTIGATIONS.

Urine had a specific gravity of 1010, was acid in reaction, and contained no albumin or sugar.

Fæces were negative for ova and protozoa. No mucus or cellular exudate was present.

Blood.—Red cells, 3,600,000 per c.mm.; hæmoglobin, 65 per cent.; colour-index, 0·9. The blood picture showed *anisocytosis and poikilocytosis.*

Blood chemistry.—The van den Bergh reaction showed a negative direct and indirect reaction. Blood calcium, 8·0 mg. per 100 c.cm.

Fractional test-meal (Feb. 17th).—The fasting juice was of normal appearance and contained no charcoal residue. Its free acidity was 28 N/10 HCl. Following a gruel meal there was a rapidly ascending curve of acidity, the high maximum of 120 N/10 HCl being attained. As judged by the starch reaction the stomach emptied in two hours. Following histamine injection the acidity reached 125 N/10 HCl (Fig. 1).

Wassermann reaction was negative.

Dr. Rowden White reported as follows:—

Radiological report.—"Opaque meal. Gastro-jejunostomy stoma patent, the stomach emptying rapidly. There was general dilatation of the small bowel, especially in the loop below the right hypochondrium. No definite evidence of jejunal ulcer. The appearance of the bowel was consistent with the diagnosis of sprue, but the possibility of an obstructive lesion such as a band compressing the small bowel must be watched for."

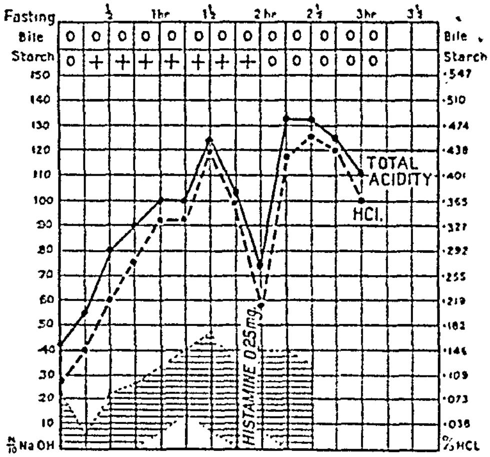
Fæcal fat (Feb. 22nd).—The stool was pale and of bulky, ill-formed consistency, slightly alkaline in reaction. *Some soaps and partially digested muscle-fibre were present.* Fatty acids, 25·0 per cent.; neutral fat, 8·9 per cent.; total fat, 33·9 per cent., of which 73·86 per cent. was split, and 26·14 per cent. was unsplit.

PROGRESS UNDER TREATMENT.

The intense hyperacidity and history of previous operation suggested a recurrent or jejunal ulcer, but the absence of hunger pain and dyspepsia, and the negative nature of the radiographic findings, did not support this view. As the clinical picture closely approximated to that of sprue the diagnosis made in Malaya was accepted.

The patient was put on the standard high-protein, low-fat, low-carbohydrate diet (Fairley, 1930), combined with full doses of liver extract (six ampoules Eli Lilly No. 343 = 1¼ lb., daily) and calcium lactate per os. Under this régime the general condition markedly improved, and the blood picture returned to normal. Thus on March 25th the red cells were 4,900,000 per c.mm., the hæmoglobin 85 per cent., and the colour-index 0·87. The blood calcium rose to 9·8 mg. per 100 c.cm., and the blood phosphorus was 4·2 mg. per 100 c.cm. The stools also became brown, hard in consistency, and were normal in all respects except that analysis showed a high fat content, the report on April 2nd being as follows: "Stool was hard, formed, pale brown in colour, and alkaline in reaction; partially digested muscle-fibres were present. Fatty acids, 33·96 per cent.; neutral fats, 10·79 per cent.; total fat, 44·75 per cent., of which 75·9 per cent. was split, and 24·1 per cent. was unsplit."

FIG. 1.



CASE 1.—Intense hyperacidity with jejunal ulcer and gastro-jejuno-colic fistula, before operation.

During this treatment the patient lost 1 lb. in weight, and had at times troublesome gastric and intestinal flatulence associated with transient attacks of abdominal distension; he stated, however, that he felt very fit, and as the bowels were acting normally and he was anxious to carry on treatment in Scotland, he was discharged as relieved on April 3rd. He remained ten days in Scotland, but as the weather was very cold he returned south to Bournemouth. There the motions became more frequent, two to three being passed in the early morning. There was no abdominal distension or flatulence, but 5 lb. were soon lost in weight.

He was readmitted to hospital on April 30th; apart from anæmia the physical findings were similar to those already described. Blood pressure, 82/55; red cells, 3,400,000 per c.mm.; hæmoglobin, 70 per cent.; colour-index, 1·0; and the average diameter of the corpuscle, 7·8 μ. The glucose-tolerance curve was normal. The patient was again put on a high-protein, low-fat, low-carbohydrate diet, liver extract (full dosage), and calcium.

The following dated notes indicate further progress:—

May 15th.—For two days periodic attacks of epigastric pain had occurred not definitely related to meals, but relieved by changing posture. Three large stools were passed in the last 24 hours; they were malodorous and semi-fluid, and contained undigested food particles. Flatulence was also marked. Physical examination showed some tenderness in the epigastrium about 2½ inches below the xiphoid process.

May 23rd.—After a dose of tincture of belladonna, ♏ xv., the patient developed severe epigastric pain at 9 A.M., which culminated in precipitous vomiting of greyish, semi-fluid, foul fæcal material containing a little mucus. At 10 A.M., 11.30 A.M., and 12 noon the patient vomited similar material, the total quantity amounting to nearly three pints; belching of foul flatus also occurred. The patient, however, was in no way shocked, and he took his usual lunch and tea without discomfort. It was now ascertained for the first time that during his last stay in hospital fæcal belching had occurred, though he had never reported its occurrence; it was particularly marked after the last meal in the evening, and relief often followed the evacuation of a large stool. A diagnosis of gastro-jejuno-colic fistula was now made, and operation advocated. Pre-operative treatment included the administration of glucose in large quantity and insulin.

OPERATION.

On May 26th the abdominal cavity was opened by excision of right paramedian scar of previous operation. Adhesions to the anterior abdominal wall were separated, and the site of the gastro-jejunal anastomosis was isolated. A large inflammatory mass involving stomach, jejunum, and transverse colon was discovered. Gentle separation of the parts opened up a large ulcer near the point at which the efferent loop of the jejunum turned downwards and exposed a large defect in the wall of the transverse colon. The jejunal wall was so extensively involved in the inflammatory condition that its separation resulted in almost complete transverse division.

The opening in the colon was closed by two layers of sutures, the line of these being placed transverse to the long axis of the bowel in order to avoid subsequent constriction. The stomach opening was trimmed where its margin was necrotic, and was closed in similar manner after examination of the pyloric region had made sure that no signs of ulceration or stenosis were present. The continuity of the jejunum was re-established by simple end-to-end anastomosis. A large drainage-tube was inserted, and the abdominal wall was closed in layers.

POST-OPERATIVE PROGRESS.

Despite the extensive nature of the operation and the low initial blood pressure the patient did not appear unduly shocked, but for the next three weeks a remittent temperature developed, varying between 99·2° F. and 101° F. For the first three days up to 2000 c.cm. of a 5 per cent. glucose solution was daily administered intravenously.

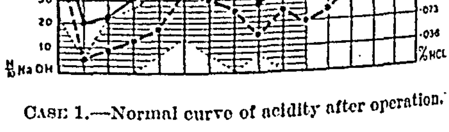
May 29th.—Albumin water (1 oz.) was allowed two-hourly. A foul, brownish-grey fæcal discharge containing gas bubbles now appeared from the original tube, which was replaced by one of smaller diameter.

May 30th.—A transfusion of 520 c.cm. of citrated blood was given: the progress of the anæmia may be studied in Fig. 1.

May 31st.—The patient was now placed on milk and Benger's food; glucose was administered in all drinks. Intravenous glucose was discontinued.

June 2nd.—The patient was given chicken and vegetable soup, and eggs were also allowed.

FIG. 2.



CASE 1.—Normal curve of acidity after operation.

June 4th.—The bowels began to act normally and Parke, Davis's ventriculin (two tubes daily, i.e., 20 g.) was given, as well as alkaline powders half an hour after each hourly feed.

June 6th.—There was still a copious discharge of brownish fluid from the fistula. From this date onward the patient progressed satisfactorily. Two-hourly feeds (3 oz.) of milk thickened with cornflour, thick Benger's food, junket and custard were given. Eggs and pounded fish were also allowed, as well as toast. Alkaline powders were continued.

June 17th.—There was but little discharge, and the tube was taken out. The blood pressure was 100/60.

June 18th.—The patient, who was very much better, was eating satisfactorily and did not complain of abdomina discomfort. Tea, sponge cakes, chicken, tripe, milk puddings, and jelly were now added to the menu.

June 20th.—The stool was dark and formed, with a alkaline reaction; microscopical examination revealed soap plaques. Analysis showed fatty acids 17 per cent., neutra fat 29·25 per cent., and total fat 46·25 per cent., of which 36·7 per cent. was split, and 63·3 per cent. unsplit.

June 28th.—The discharge from the sinus had practically ceased.

July 4th.—A fractional test-meal (Fig. 2) showed great improvement. The fasting juice was normal except for a high-grade acidity, 50 N/10 HCl. There was no evidence of charcoal retention. The curve of acid secretion was normal, and the stomach emptied in approximately two hours. A secondary rise occurred after this, the acidity reaching a maximum at three hours of 35 N/10 HCl. Blood calcium, 10·0 mg. per cent.; blood phosphorus, 3·3 mg. per cent.

The radiologist's report was as follows:—

July 8th.—"An opaque meal showed that the stomach was dilated and hypotonic. There was some persistent irregularity of outline in the prepyloric region probably due to adhesions. At three hours stomach residue was present; most of the meal was massed in the ileum on the left side of the abdomen. At six hours stomach residue was still present; the cæcum and ascending colon were filled. There were some isolated dilated coils of ileum. At 24 hours stomach residue was still present; the cæcum and transverse colon were filled.

"*Commentary.*—The gastro-jejunostomy has been undone, and the stomach now shows delayed emptying. Evidences of small bowel adhesions are present."

On July 10th the patient was discharged from hospital; now his weight was 9 st. 3 lb.—a gain of 2 st. since operation. The blood counts, too, were almost normal—i.e., red cells, 4,500,000 per c.mm.; hæmoglobin, 70 per cent.; colour-index, 0·8. There was no abdominal discomfort, the fistula had closed, and the abdominal incision completely healed.

Six months later the patient reported back to hospital in perfect health, his weight now being 13 st. During the interval he had kept on alkaline powders and Alvarez's smooth ambulatory diet.

The Second Case.

A sea pilot, aged 49, was admitted to the Hospital for Tropical Diseases on June 3rd complaining of weakness for the past four months.

Since 1908 he had been stationed in Rangoon except for a period of four years from 1916–1920, when he was located in Mesopotamia. In the tropics he had suffered from dengue, sandfly fever, and malaria.

The present illness started in February, 1930, with griping pains in the upper abdomen, and an afebrile diarrhœa characterised by pale, fluid stools. For some little time previous to this date, however, he had not been feeling as well as usual. After six days' rest in bed the stools became normal, and the patient returned to duty, though he was still somewhat anæmic, the red cells 4,100,000 per c.mm., the hæmoglobin 65 per cent., and the colour-index 0·8. The blood picture showed slight anisocytosis and polychromasia. Leucocytes were 7800 per c.mm. He was treated with liver extract, iron, and arsenic, and recovered within three weeks, his illness at the time being attributed to food poisoning. On the third week in March, 1930, large, soft, putty-coloured motions reappeared; the diarrhœa generally started about 5.30 A.M., and during the next four hours three to four stools would be passed, after which there would be no action of the bowels until next morning. Abdominal discomfort, relieved by flatulence, was a *feature of this illness.*

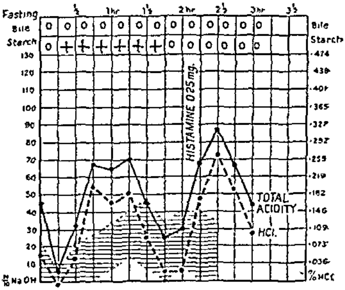
About this time the patient became appreciably weaker and more anæmic, and a blood examination was made in Rangoon by Colonel J. Taylor, I.M.S. The red cells were 3,130,000 per c.mm., hæmoglobin 77 per cent., and the colour-index 1·2. He was put on a milk and fish diet, with hydrochloric acid and liver extract (two tubes, ¼ lb., daily), and during the next three weeks he piloted a boat. Gradually, however, he became worse, his appetite decreased, and he developed a sore mouth and tongue which presented red streaks down the centre and aphthous blisters posteriorly. Hot fluids caused a burning feeling in the throat and behind the sternum, and alcoholic drinks caused pain. The blood the sternum, and alcoholic drinks caused 2,640,000 per examined on April 23rd showed red cells colour-index 1·2. c.mm., hæmoglobin 64 per cent., and numerous The blood picture showed polychromasia and indicated a megalocytes; the halometer measurements megalocytic anæmia.

Up to the time of leaving Rangoon on May 1st he had lost 3 st. in weight, and for the first two weeks on the return voyage there was an evening temperature, and ill-defined abdominal pain which sometimes kept him awake at night. Abdominal distension had been present for some time past, but there was only one loose *motion* daily until May 25th, when he had an attack of vomiting and violent diarrhœa with putty-coloured motions. Later the condition improved, he gained 5 lb. in weight, and at *the time of admission* to hospital he was passing only one light-coloured, formed stool daily. The appetite, however, had not improved.

EXAMINATION.

The patient was still fairly well nourished, weighing 12 st. on admission as compared with a usual weight of 14 st. 9 lb.

FIG. 3.



CASE 2.—High acidity with gastric carcinoma and gastro-jejuno-colic fistula, before operation.

The skin was slightly yellowish in colour, of elastic consistency, but not rough and dry, as is so frequently observed in sprue.

Eyes.—The conjunctivæ and the discs were pale, but showed no other abnormality.

Tongue.—The tongue was moist with a thin, whitish fur on the dorsum, except for a clean central area where there was slight papillary atrophy. The gums were healthy.

Chest.—There were scattered rhonchi throughout both lungs, and systolic murmurs were present at all areas over the heart, the apex-beat of which was in the fourth interspace 3½ in. from the mid-line. Blood pressure 132/72. Radiographic examination of the heart and lungs was normal.

Abdomen.—On palpation the abdomen showed neither tenderness nor rigidity; the sigmoid was palpable in the left iliac fossa. The lower edge of the liver was just palpable on deep inspiration; radiographic examination showed no enlargement. The other abdominal organs appeared normal.

Œdema of the feet and lower third of the legs was present. No enlarged lymphatic glands were detected. Rectal examination and examination of the nervous system revealed no abnormality.

SPECIAL INVESTIGATIONS.

Urine.—Specific gravity 1016, reaction acid, no albumin, no sugar.

Fæces.—Negative for ova and protozoa on four occasions.

Blood.—Red cells 2,000,000 per c.mm., hæmoglobin 40 per cent., colour-index 0·7, average diameter of red cells 8·4 µ. The blood picture showed marked anisocytosis, poikilocytosis, and polychromasia. Numerous megalocytes were present. Leucocytes 20,000 per c.mm. The differential count was as follows: neutrophiles, 82 per cent.; lymphocytes, 15 per cent.; large mononuclears, 3 per cent.

Wassermann reaction.—Negative.

Blood chemistry (June 4th).—Blood calcium, 8·4 mg. per 100 c.cm.; inorganic phosphorus, 2·7 mg. per 100 c.cm. Van den Bergh reaction, both direct and indirect reactions negative.

Fæcal analysis (June 4th).—The stool was bulky and pale, and gave a slightly acid reaction to litmus. Microscopical examination showed a few soap plaques. Fatty acids, 34·3 per cent.; neutral fat, 13·1 per cent.; total fat, 47·4 per cent. Of this 72·3 per cent. was split, and 27·7 per cent. was unsplit. Analysis thus showed a definite excess of total fat with adequate splitting.

Fractional test-meal.—A fair sample of fasting juice was not obtained, but free acid was present (16 N/10 HCl). The ordinary fractional curve showed that acid secretion small bowel abnormality where, owing to multiple anastomoses following appendicitis and intestinal obstruction with fæcal fistulæ, almost all the absorptive function of the small bowel was lost. Finally Castle (1930) found that the gastric juice of a case of megalocytic anæmia with multiple anastomoses of the small intestine contained normal amounts of hydrochloric acid, pepsin, and rennin, but was entirely deficient in the stimulating factor necessary for normal erythroblastic activity of the bone-marrow; furthermore, the anæmia responded in typical fashion to liver extract.

The blood picture in these two cases and their response to treatment are of considerable importance and may be studied in the accompanying charts (Figs. 4 and 5). In Case 2 the blood examined showed that the anæmia was megalocytic in type, the average diameter of the red cell by halometer measurements† equalling 8·4 microns. The colour-index was, however, low (i.e., 0·7), whereas in Burma, two months previously, it had been 1·2; this reduction is attributable to treatment with liver extract which generally leads to a disproportionate increase of corpuscles over hæmoglobin. The patient was put on a high protein diet and liver extract (Eli Lilly, No. 343; dosage= ¾ lb. liver daily), and under this régime there was a rise in reticulocytes to 5·1 per cent. on the seventh day. Though the reticulocyte count was maintained somewhat above the normal level (0·1–1·0 per cent.) for a considerable period, there was no corresponding improvement in the blood counts over the first five weeks of treatment, the probable reason for this being the presence of septic absorption from the ulcerated surfaces of the gastro-jejuno-colic fistula. Throughout this period there was a leucocytosis of from 15,000 to 20,000 cells per c.mm., and a neutrophilia varying between 77 and 82 per cent. Even the blood transfusion on June 24th did not appear to exert any immediate beneficial effects. About this time a drop in the leucocyte count occurred, and from July 11th onwards counts varying from 9000 to 13,000 per c.mm., with a neutrophilia of 66 to 75 per cent., were observed. Simultaneously with the decrease in the white count there occurred a definite improvement in the red cell count, the corpuscles rising from 3,100,000 to 4,500,000, and hæmoglobin from 44 to 60 per cent. over a period of approximately two months (Fig. 5). This improvement in the anæmia was also reflected in halometer measurements of the diameter of the corpuscles which remained stationary at 8·4 μ over the first five weeks, but thereafter fell progressively until they reached a measurement of 7·8 μ.

The hæmatological findings in Case 1 were similarly instructive. On the first admission there was a moderate degree of anæmia—i.e., red cells, 3,600,000; hæmoglobin, 65 per cent.; colour-index, 0·9. After a course of high protein dietary and liver extract (=1½ lb. daily) he was discharged with a red cell count of 4,900,000 per c.mm.; hæmoglobin, 85 per cent.; and colour-index, 0·9. Later relapse occurred, and on readmission the red cells were 3,400,000, hæmoglobin 70 per cent., and the colour-index 1·0. The diameter of the corpuscle was at this time larger than normal—i.e., 7·8 μ. Again a high protein diet and liver extract were prescribed, but unfortunately the reticulocyte response was not investigated. Improvement ensued for the first three weeks; this was followed by a fall in both red cell count and hæmoglobin value. Operation was performed on the twenty-sixth day, and an increase in the anæmia followed: transfusion of 520 c.cm. of citrated blood was given on the thirtieth day, and liver extract therapy was reinstituted. This, however, nauseated the patient, and five days later he was put on full doses of ventriculin (Parke, Davis and Co., 20 g.) which he tolerated well. A progressive increase in the hæmoglobin and corpuscles followed, and on discharge from hospital the red cells were 4,500,000 per c.mm., the hæmoglobin 70 per cent., and the colour-index 0·8 (Fig. 4). Later normal values were established. While in this case the restoration of the anæmia following operation cannot be with any certainty attributed to transfusion and ventriculin, the original improvement following liver extract may reasonably be ascribed to its administration. Though less conclusive, the balance of evidence favours the view that we were again dealing with an anæmia of megalocytic type.

The findings in these two cases point to the advisability of further biochemical and hæmatological investigations in animals in which gastro-colic and gastro-jejuno-colic fistulæ have been artificially induced.

Since submitting these two reports for publication a third case of gastro-jejuno-colic fistula has been admitted to the Hospital for Tropical Diseases under Dr. Carmichael Low. It presented many similar features.

A Third Case.

The patient, aged 58 years, was a chef in the Cunard Steamship Company, and had visited both South America and Ceylon. On Oct. 7th, 1931, he was transferred from the Albert Dock to the Tropical Diseases Hospital, his main complaint being "diarrhœa and weak legs" for the past year.

He had enjoyed good health until nine years ago, when gastric symptoms developed. A posterior gastro-enterostomy had been performed at the Seamen's Hospital, Greenwich, on Dec. 14th, 1927. Subsequently he had remained well until a year ago, when the present illness started with vomiting, diarrhœa, and cramp in the legs after eating mushrooms. Loose, offensive, clay-coloured stools followed. As many as eight were passed daily, being distributed evenly over the 24 hours. Though the appetite remained good numbness and weakness developed in the legs, which later became œdematous. Much weight was lost.

EXAMINATION.

The patient was edentulous, having recently had total extractions. The *tongue* was large, red, slightly furred and showed some fissuring. No atrophy of the fungiform or filiform papillæ was evident; lingual and buccal apthous ulcers were absent.

There was some definite tenderness on deep palpation of the *abdomen* just above and to the right of the umbilicus, while central periumbilical distension extending inferiorly was very evident. Visible peristalsis of the gut was seen through the atonic wasted parietes. A right inguinal hernia was present.

The patient, who was quite unable to stand, presented marked wasting of the legs, the skin of which was harsh and dry; a flaccid paresis of all the muscle groups was present. Appreciation of both light-touch and pin-prick was very variable to the level of the umbilicus, but the patient was a bad witness and difficult to examine. Deep sensation appeared to be increased. The tendon reflexes were were absent, and the superficial abdominal reflexes were not elicited on the left side only. The plantar reflexes were not obtained. For some days before death there was loss of control of the anal sphincter.

SPECIAL INVESTIGATIONS.

Dr. Martin Berry was not able to make a satisfactory examination with the barium meal owing to the advanced illness of the patient; an opaque enema failed to pass the splenic flexure.

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† Where the red cells exceed 2,000,000 per c.mm., halometer measurements give very constant values; most of the megalocytic anæmias of the tropics fall into this category. In the severer grades of pernicious anæmia with counts of 500,000 to 1,500,000 per c.mm., the physical properties of the blood may make the preparation of films giving reliable and defined haloes very difficult, and under these circumstances the more informative Price-Jones curves become indispensable.

Blood.—Red cells 3,600,000 per c.mm., hæmoglobin 68 per cent. (Haldane), colour-index 0·94, diameter of corpuscle 8·4 μ. The leucocytes numbered 6000 per c.mm., and the differential count was: neutrophiles, 77 per cent.; lymphocytes, 20 per cent.; monocytes, 3 per cent.; eosinophils, 0 per cent. There were numerous megalocytes as well as anisocytosis, poikilocytosis, and polychromasia, while the average diameter of the corpuscle estimated by the diffraction micrometer (Eve's halometer) varied between 8·4 and 8·6 μ. The anæmia which was only of mild degree must, therefore, be regarded as definitely megalocytic in type.

Biochemical observations.—The urine showed no abnormality, its diastatic power equalling 10 units, and for the 24-hour secretion 2600 units. The brom-sulphalein test for liver function showed a 70 per cent. dye retention after five minutes, and a 10 per cent. retention after half an hour. By the latter time all dye should have disappeared. The van den Bergh reaction gave a negative direct and a positive indirect reaction of 0·5 units. The stool contained occult blood and chemical analysis showed fatty acids, 25·0 per cent.; neutral fat, 6·8 per cent.; total fat, 31·8 per cent., of which 78·8 per cent. was split and 21·2 per cent. unsplit. Splitting was adequate, though there was an excessive total fat content. Fæcal pigment was almost entirely absent, only a trace of stercobilin being present.

The patient was originally suspected by his doctor of suffering from gastric carcinoma with secondary deposits in the vertebræ, and later this was modified to a diagnosis of chronic pancreatitis or carcinoma of the body of the pancreas. On admission to the Tropical Diseases Hospital the neurological features plus the megalocytic anæmia suggested the possibility of subacute combined degeneration, while the fatty clay-coloured stools associated with marked emaciation raised the question of tropical sprue. Throughout, the temperature was normal, and neither fæcal vomiting nor the eructation of foul gas was reported. Finally a diagnosis of gastro-jejuno-colic fistula was made. The patient was much too ill for operation. Hepatex P.A.F. was commenced intramuscularly, and a 3 per cent. reticulocyte response was noted on the second day, but on the third day the patient died. At autopsy the diagnosis was confirmed.

AUTOPSY.

Nov. 1st.—As numerous adhesions were present the stomach, duodenum, the proximal and distal anastomotic loops of the jejenum, as well as the transverse colon were tied off and removed en masse from the abdomen. On opening up the stomach the stoma of the gastro-enterostomy was found patent, and the finger could be inserted from it into the loops of the jejunostomy, while anteriorly it passed on into the transverse colon. Incision of the duodenum showed a deep crater ulcer about 1 cm. in diameter situated on the posterior wall 1·5 cm. from the pylorus; its base was adherent to the pancreas and covered with epithelium. Marked narrowing of the duodenal lumen occurred in its vicinity owing to cicatricial contraction. On incising the transverse colon a large circular opening about 4 cm. in diameter was found communicating directly with the distal loop of the jejunostomy, very close to its junction with the stomach. The liver was yellow and fatty on section, weighing 1240 g.; it failed to give the Prussian blue reaction for iron. The spleen was atrophic and a quarter its usual size (42 g.), while the kidneys were somewhat tough in texture. The left suprarenal was greatly hypertrophied and weighed 24 g.; the right was also enlarged (12 g.). No abnormality of the pancreas was detected. The heart was small and weighed 230 g.; the coronary arteries were atheromatous and calcified. A terminal broncho-pneumonia involved the lungs.

Bone-marrow.—The macroscopical appearances of the marrow in the sternum, ribs, vertebræ, and femur were not typical of pernicious anæmia. The medullary canal of the right femur contained much yellow marrow interspersed with small foci of red marrow, which was also noticeable in the interstices of the bony trabeculæ in the head of this bone. Microscopical sections of marrow expressed from the ribs showed numerous nucleated red cells of the erythroblastic series in different stages of activity, as well as many granular myelocytes; megaloblasts also were present. The marrow was regarded as one of mixed type, in which megaloblastic hyperplasia was far from complete.

Spinal cord.—The spinal cord was removed and sent to Dr. J. G. Greenfield, who kindly sectioned the specimen and reported the absence of subacute combined degeneration.

The case was of considerable interest as it constitutes the third of the series presenting a megalocytic anæmia with sprue-like diarrhœa; the neurological features evidently originated from peripheral nerve involvement, and not from any cord lesion. Evidences of hæmolysis were not present; thus there was no hyperbilirubinæmia during life, and the liver failed to give the Prussian blue reaction at autopsy. The bone-marrow showed only a mild degree of megaloblastic hyperplasia. From the clinical viewpoint the case again illustrates the fact that any intractable diarrhœa supervening after gastro-jejunostomy should be regarded as originating from a gastro-jejuno-colic fistula until such a diagnosis is disproved.

Conclusions.

1. Three cases of gastro-jejuno-colic fistulæ presenting a clinical picture simulating sprue are recorded. 2. All presented an anæmia of megalocytic type. 3. Two were associated with high HCl secretion, and both responded temporarily to liver extract in adequate dosage. 4. Analysis of the fæces showed a high fæcal fat with adequate splitting. 5. Blood chemistry revealed a lowered total calcium associated with a normal inorganic phosphorus and a low serum bilirubin content. 6. The rôle played by malabsorption in a short-circuited small intestine, and the absence of Castle's stimulating factor in the production of the anæmia, are discussed.

We wish to thank Dr. Carmichael Low and P. H. Manson-Bahr for affording us facilities for the investigation and publication of two of the cases recorded in this paper; and also to acknowledge our indebtedness to the Colonial Medical Research Committee, whose research grant made available the services of Mr. R. J. Bromfield.

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The Manchester and Salford Hospitals.—The Manchester and Salford Medical Charities Fund, which consists of the Hospital Sunday Fund and allied societies, reports that the number of cases treated in the hospitals of the two cities in the last financial year was 313,632, against 300,500 in the previous year. The expenditure was £424,467, and there was a deficit of £45,232. The districts outside sent over 50,000 cases at an expenditure of £135,420, towards which they contributed £85,133. There are 5000 cases in Manchester and Salford waiting for beds in the hospitals.

Overcrowding at Victoria Infirmary, Newcastle.—The accommodation at this hospital, including the Innes Hopkins memorial home, is 570 beds, but the number occupied is usually 601, and on one day 656 were occupied, and there is a waiting-list of 2000. The house committee state that "from time to time serious results have been traced in part to the crowding together of patients, and in part to the fact that the normal proper attention can, only with the greatest difficulty, be given in the conditions which have obtained in the past." It has therefore been decided not to exceed the regulation number of beds, and it is announced that in future, except in the case of sudden emergencies, the casual and out-patients' departments will be confined purely to consultative work and to services of a special nature which are not available elsewhere. Cases which can be dealt with in the ordinary course by a general medical practitioner will not be treated.

PROTEIN IN ASTHMA.

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FOR many years it has been known that certain subjects of allergic diseases gain great benefit from treatment with tuberculin. A number of cases of phthisis associated with asthma were treated in this manner, and it was noticed that the asthma was very favourably influenced. These reports led to careful investigation by van Leeuwen,[1] who was led to use tuberculin in asthma as a routine measure for a number of reasons.

Assuming that asthma is an allergic disease, in which the subject is hypersensitive to certain substances, it clearly becomes necessary to discover these. Attempts to discover the causative agent were made by skin tests, but these proved unsatisfactory. Van Leeuwen says that "the causative agent of allergic attacks is seldom revealed by skin reactions," though the allergic state may be revealed. This is in complete accord with our results. Even when skin tests reveal definite hypersensitiveness, attempts to produce specific desensitisation frequently fail, though subsequent treatment with tuberculin may produce good results. Van Leeuwen found that "hypersensitiveness to a certain causative agent may be reduced also by the injection of small quantities of another allergen, provided the patient is hypersensitive to the latter allergen too." With this we also agree.

For these reasons it was clear that non-specific desensitisation was worth a trial, and in 1925 van Leeuwen published the results of such treatment of 300 cases of asthma. He found that most sufferers from allergic diseases are hypersensitive to tuberculin, and therefore chose this substance for the experiment. About 50 per cent. were "completely or almost completely cured, while about 25 or 30 per cent. were distinctly or considerably improved, and 15 to 20 per cent. remained absolutely uninfluenced." He believes that the failures are those who are very sensitive to climatic influences.

These results of Dr. Storm van Leeuwen's were so much more consistent than usual, and experience has shown that this investigator's work is always so reliable, that it seemed worth while to ascertain for ourselves what kind of results we could obtain with the same technique. After a year's work there was no doubt whatever that the system of injecting old tuberculin in high dilution had a very marked effect upon asthmatics of all kinds.[2] It then occurred to one of us that there must be some definite reason for this effect. It seemed likely enough that the tuberculous elements contained in old tuberculin had very little to do with the action of the preparation on asthmatics. It seemed much more probable that it was the protein in high dilution which was the really effective agent. We therefore decided to study the action of a simple solution of the protein—simple broth, such as might be used for the cultivation of micro-organisms. The substance selected was the "Tabloid Broth" made by Messrs. Burroughs, Wellcome and Co. and sold by them for the purposes of making artificial media. A standard broth solution is made according to their directions by dissolving one of their tabloids in 5 c.cm. of water and sterilising by boiling.

This was taken as the standard solution and some very high dilutions were made from it. Experience shows that in practice the dilution would range from one in a hundred thousand to one in a hundred million, giving one in a million as a good average dilution for starting work. These solutions of very dilute protein are renewed every month or two, because there is a very strong theoretical reason why they may degenerate in high dilution. It has been our practice to start with a dose of 0·1 c.cm. of one in a million or one in ten million. It may be mentioned here that these dilutions are usually referred to by their number—that is to say, one in a million is six dilutions in tens of the standard substance and is alluded to as D6, and in the same way, one in ten million would be alluded to as D7.

RESULTS WITH SOME SEVERE CASES.

Nearly all cases (with one or two exceptions) taken on for treatment by this method have been definitely selected. They were selected because they were extremely ill or suffered very severely from asthma and no other treatment had any effect—or any but a very slight effect upon them. Some of them, indeed, were under observation for a year or more before this treatment was started. From the "Remarks" column in Table I. it will be seen that many of them had some minor surgical operation in the nose or throat before this broth was tried upon them; and in such cases a definite time was allowed after the operation in order to eliminate any possible improvement which might occur as a result of surgery. The cases are not the whole number, but are those who have been under treatment for some time and from whom replies were obtainable as to the results of the treatment from their own point of view. They are quite unselected in any way except for severity of disease and reasonable regularity of attendance.

Nearly all of them have had their skin reactions done and a very large number of proteins were used in the process. It seems reasonable to divide the substances used into food (or internal protein) and external proteins; and the external proteins have again been divided into pollens, hairs (under which term is included feathers and all materials such as may be obtainable in epidermal dust), and micro-organisms.

The information gained by skin testing is, on the whole, of very little practical value; it is so common to find that a patient is sensitive to many different proteins and very often in different groups. One would say that the group which most often stands alone is the pollen group. It is very rare to find a person who is sensitive to only one type of protein. Moreover, we do not think that the type of protein to which a patient is sensitive is much guide to prognosis or to the effect of treatment or, indeed, of help in any way except, perhaps, in making certain of an allergic state. Even this is not certain, because there is one case in this series on whom extensive trials were made; although she was frequently seen in very bad attacks of asthma, it was quite impossible to find any protein to which her skin was definitely sensitive.

If we had to place the four classes in order of difficulty of treatment, we would say that the bacterial type was most resistant, followed by food, hair, and pollen in that order, the pollens being the ones that react the most easily. But this is not ally a scientific statement, because the results re too confusing to give any certain guidance.

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[1] Allergic Diseases. Philadelphia and London, 1925.
[2] *Practitioner*, 1927, cxviii., 382.

There is no doubt whatever in our minds that mall weekly doses of broth in high dilution given to n asthmatic person have an extremely marked ffect on the course of the attacks, even when these ttacks are very bad and recurring nightly and have esisted all other attempts to modify them. Where e patient is relatively slightly affected, especially children, the result for the most part is dramatic nd immediate. But it is equally clear that if the eekly dose of protein is discontinued within anying less than six months to a year, or even longer, e attacks will recur, and are sometimes almost as ad as they were before any injections were given. t has been found extremely difficult to increase the ose once the right dose is found, or to increase the tervals—particularly in bad cases. In slighter ases the dose may be very, very slowly increased nd the interval very slowly lengthened. But the ief point and the main difficulty is to find the ght dose for the individual, because this dose may ary between 0·1 c.cm. of D.8 (1 in 100,000,000) to ·75 c.cm. of D.6 (1 in 1,000,000).

A SYSTEM OF SHORT-TIME PROPHYLAXIS.

We cannot, therefore, advance this system as xactly one of treatment in the ordinary sense of he word. It is, rather, a system of short-time prophyaxis. An effort to make this prophylaxis lasting nd attainable in a reasonable period has not been ery successful. At the same time, such is the importnce to the unfortunate people (who, in the most teral sense of the word, "suffer" with this comlaint) of the relief given by this system that they ill attend with the utmost regularity, week by week, order to avoid any return to their previous state. t is no exaggeration to say that many of these ersons, who previously spent many months in the ear completely in bed and utterly incapacitated, ave been able to carry on with their ordinary uties and to live a reasonably normal life. It is rue that some of them may still wake up once in a ight with a certain amount of tightness of the hest, hardly amounting to an attack; and others, hough they may never have anything resembling an attack, still have a good deal of bronchitis, which we find is the most persistent sequel after the asthmatic pasm itself has been abolished.

Nevertheless, we would not have it regarded as a special form of treatment, but rather as an interesting experimental fact, that a small amount of foreign protein introduced under the skin periodically will, over a certain short space of time, maintain a person in a state of reduced susceptibility to his allergic spasm.

The cases here collected are set forth in Table I.

TABLE I.—*Summary of Cases Treated.*

Case.	Age.	Duration of disease. Years.	Sensibility.	Months under treatment.	Result.	Remarks.
1	*2*	*3*	*4*	*5*	*6*	*7*
1	11	11	F.	5	A.	—
2	36	15	—	14	B.	—
3	32	9	E.P.B.	8	C.	Some fibrosis of left lung as well.
4	27	25	F.E.	17	B.	Excessive bronchitis.
5	35	10	F.E.B.	5	B.	Septum operation for chronic rhinitis.
6	13½	1	F.P.	4	B.	Tonsillectomy.
7	41	10	E.	10	C.	Excessive bronchitis.
8	35	7	E.P.	16	B.	,, ,,
9	38	8	F.E.P.	6	C.	,, ,,
10	39	2	Nil ex 45	24	A.	Nasal polyp. removed.
11	21	6/12	F.E.	8 irreg.	A.	In spite of irregular attendance — always free when attending.
12	25	3	Nil ex 48	24	A.	Excessive bronchitis.
13	22	2	P.	24	A.	—
14	37	Several	F.E.	7 irreg.	A.	Gas poisoning in war.
15	20	2	F.E.	8	C.	Septum operation.
16	42	7	F.	7	C.	Very unsatisfactory attendance.
17	42	4/12	F.E.	24	A.	Severe attacks of bronchitis.
18	7½	3	—	6	A.	Not a severe asthma—cured at once.
19	18	8	E.B.	24	B.	Old pulmonary tuberculosis healed.
20	42	15	—	6	A.	Excessive bronchitis.
21	11	8	F.E.B.	24	B.	—
22	31	9	—	30	C.	Nasal polyp. removed with turbinectomy.
23	30	6	E.B.	8	B.	Twice relapsed after leaving off injections.
24	49	5	F.E.	12 irreg.	C.	Fibrosis of lung with excessive emphysema.
25	6	4	F.E.B.	18	A.	—
26	9	9	F.E.	24	A.	—
27	30	1	B.	9	B.	—
28	41	10	D.	24	B.	—
29	44	Many	E.P.	18	B.	High blood pressure.
30	50	4	?	6	A.	—
31	9	6	?	6	A.	"Angioneurotic œdema."
32	7	1	F.	24	C.	Middle turbinals cauterised.
33	39	18	E.P.	36	B.	Often seen in very bad attacks at hospital.
34	24	2	?	12	A.	—
35	43	1½	F.E.	48	A.	Nasal polyp. removed.
36	20	2	F.E.P.	36	B.	—
37	29	14	E.B.	24 irreg.	C.	Fibrosis of right lung. Only attended when attacks returned.

Cols. 1, 2, and 3 are self-explanatory. In No. 3 it will be noticed that some cases appear to have had the disease for as many years as they are old. This, of course, is probably slightly misleading; it means either that the patient says that he has had the condition for as long as he can remember, or the mother has informed us that the child has had the condition "ever since it was born."

Col. 4 gives the sensibility to various proteins. They have been grouped under the headings of: (F) which is food of all kinds; (E) external protein—i.e., all hair combing and dust products generally; (M) micro-organisms; and (P) pollen.

Col. 5, the period under treatment, is again difficult to get quite perfect because four cases were occasionally irregular in attendance, and this is indicated by the abbreviation "irreg." The great majority of cases, however, come extremely regularly, because as long as they do so they are, for the most part, very much better. The irregular cases are often those who improved so rapidly that they took the risk of not attending, sometimes because it was difficult to get away from their work, to which they had been able to return.

Col. 6. Results have not been put down as "cured" or words of that kind because, in the present circumstances, such words are misleading and have a Continental tang. We have placed the four groups as follows: (A) signifies cured, in the special sense of the word that they have no attack as long as they are under treatment; (B) signifies very much improved—i.e., although they occasionally have a transient tightness of chest and possibly still a little bronchitis, their asthma is, to all intents and purposes, negligible; (C) groups those cases which may be called improved—i.e., they still have a certain amount of asthma and even, occasionally, a definite attack; but they are different in health since they have been under the influence of the injections.

We have not included a class where there is no improvement or no change after the treatment has continued for some weeks because we cannot find a single case to put in it. We do know of cases who might be included under this heading, but they have never attended in the least regularly, or, indeed, ever made any attempt to attend regularly; and they have only come up when actually having bad asthma. Of course this type of case would only be treated for a few weeks with the broth, Burroughs Wellcome (B.B.W.) and, therefore, is not strictly included in this series.

This series is too small for statistical treatment and, as a group of asthmatics, it is not really comparable with the average run of asthmatics or with any published series of asthmatics, because the cases are, as previously pointed out, selected for their badness, with the exception of one or two; therefore the results are unsuitable for comparing with those of any other process. Nor is there any attempt to put them into a therapeutic category. But, as shown in Table II., we find that 40 per cent. are very markedly affected by this injection to the extent of almost complete inhibition of the spasm; 35 per cent. are markedly improved by it, with considerable modification of the spasm; 24 per cent., rather under a quarter, are affected but not very deeply, and this applies to very bad cases.

TABLE II.—*Summary of Results.*

Class.	Number of cases.	Percentage.
A.	15	40·5
B.	13	35·1
C.	9	24·4
Total ..	37	100

This paper is merely to call attention to the undeniable fact that a small injection of protein in high dilution has very marked effect on the spasmodic attack associated with asthma. It is not easy to give an explanation of these facts which shall be completely satisfying because our knowledge of what happens to a few molecules of foreign protein introduced hypodermically is far from perfect. It would be easy enough to put forward hypotheses on general chemical grounds or on our general knowledge of blood chemistry, but in the absence of any experiments in this direction such a procedure would be unprofitable until we have been able to make further tests, and these must necessarily take some time.

In most of the published accounts of specific injections with a preparation of the specific protein or proteins to which the skin is sensitive, the writers are very vague on the method of preparation and standardisation of the dose of their product. We think that the experiments recorded in this paper explain the conflicting reports on the value of these "specific" injections in asthma. For the specific product may, if it happens more or less by chance to be in the *correct dose*, deal with the asthma as a whole as effectively as the product that we have tried. But our own tentative experiments (undertaken some years ago) in specific therapy were *not* successful.

SUMMARY.

(1) A small weekly hypodermic dose of simple animal protein in high dilution is an effective agent in preventing allergic spasm.

(2) It is difficult to prolong the action of the protein except in mild cases.

(3) We agree with van Leeuwen that, while skin tests often reveal the allergic condition, they are not of therapeutic value.

DOSAGE AND RESULTS OF SANOCRYSIN TREATMENT.

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THE results of sanocrysin treatment depend upon many factors, above all upon the extent of the tuberculous process, and upon the dosage. The treatment can be used either as a radical cure or to give temporary relief, and its results should be judged accordingly and with reference to the late as well as to the immediate results. I still regard the clinical reactions elicited by the treatment as a result of the setting free of toxins. The degree of reaction is in direct proportion to the extent of the tuberculous change and to the dosage of sanocrysin; the clinical features depend upon the pathological anatomy, and primarily upon whether the tuberculous lesion is closed or open—whether the toxic substances are absorbed or evacuated by expectoration. The treatment of open lesions is accompanied by a brief reaction, but that of closed lesions may be associated with very severe reactions due to toxic absorption. An advanced stage is therefore a contra-indication to sanocrysin, as the patient will be unable to stand the intoxication produced by the treatment. I now reserve sanocrysin for cases where cure, or at any rate considerable improvement, can be anticipated. The limits for effective sanocrysin treatment can only be learnt by experience.

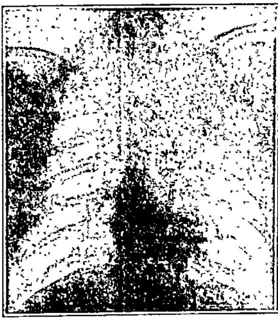
IMPORTANCE OF HIGH DOSAGE.

Many of the poor results of sanocrysin reported by physicians in various countries appear to me to be due to faulty—usually too low—dosage. All animal experiments have shown the desirability of giving a dose of from 1·5 to 2·0 cg. per kg. of body-weight. From the beginning I have planned my dosage to conform to the nature and extent of the lesion and to the weight of the patient. In most instances the first dose has been 1 cg. per kg., repeated and increased according to the condition of the patient and the degree of reaction. Usually the first two or three doses have been given at two-day intervals, and the others at intervals of four, five, or six days. Thus my usual first dose is 50 cg., and the second dose 75 cg. or 1·0 g.; as much as 1·25 or 1·5 g. is given if the weight of the patient warrants it. Patients with acute pneumonic processes have only 25 or 35 cg. at the first injection, as they are likely to have severe intoxication. If practicable, the treatment is continued until there is no reaction after doses of 1·5 or 2 cg. per kg., and is then followed by sanatorium régime. The course of the disease is considerably curtailed by sanocrysin, and the reactions are not dangerous if they are properly managed. I am convinced that better results are obtained by giving large doses which cause reactions than small doses which do not cause reactions.

Some workers have combined sanocrysin with serotherapy, but have abandoned this method; I am, perhaps, the last to have abandoned it, but I have now done so, chiefly on account of the criticism put forward by Bie. It certainly seemed to me at one time that the serum might save life when very severe cases developed so-called "shock" after sanocrysin.

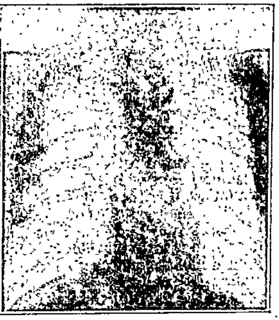
Permin first suggested an initial dose of 5 or 10 cg., the quantity being slowly increased up to 1 g. This method, largely used in England, avoids severe reactions but requires a large number of injections, of which the early ones are quite useless therapeutically and only increase the amount of metal stored in the organism (Hansborg). The absence of a reaction is by no means a desideratum; the activation of the tuberculous focus, especially an old focus (Bie and Gravesen), may be of the greatest importance to later healing. Gravesen, indeed, asserts that adequate contact between the focus and the remedial agent can only be achieved by means of hyperæmic lung tissue. Most workers are now trying the larger dosage (E. D. Fischer). In my opinion, however, the total dose should not exceed 6 to 8 g. on account of storage.

FIG. 1.



Radiogram showing typical infraclavicular focus.

FIG. 2.



Condition after treatment.

To illustrate the importance of activation of the lesion in a case of closed tuberculosis without expectoration I cite the following case.

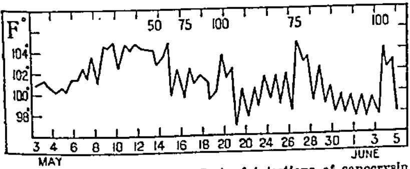
A man, aged 37, was admitted on Dec. 19th, 1929, with a temperature of 39·3° C. The temperature remained high during the period of observation; on Jan. 10th it was 38·4° C.–39·2° C. His weight was 60·7 kg., and he had a typical infraclavicular focus (Fig. 1). Sanocrysin treatment was started on Jan. 11th. The temperature fell after the first injection, and the patient suffered no discomfort. The focus completely disappeared, as shown in Fig. 2, and the weight increased to 63·9 kg.

Date.	Dose of sanocrysin.	Temperature, deg. C.
Jan. 11th	50 cg.	38·5–39·7
" 14th	75 "	37·6–38·4
" 17th	100 "	37·4–38·0
" 22nd	100 "	37·0–37·6
" 30th	100 "	37·2–37·8

A second example illustrates the value of the treatment in a case of longer standing with bacilli in the sputum.

A woman, aged 20, was admitted on April 16th, 1928. She was found to be suffering from pleurisy, tubercle bacilli were demonstrated in the sputum, and she had a few small hæmoptyses. On Jan. 15th, 1929, she was transferred to a sanatorium, where she remained for five months, the sputum being positive all the time. She was sent back to hospital on August 10th on account of an intestinal complaint, and was transferred to my department. She then weighed 40·5 kg., and had bacilli in her sputum. Auscultation revealed nothing definite except some fine crepitations below the right clavicle, but the radiogram showed several small infiltrations in the central part of the lungs. Her temperature was 36·8°–37·5° C. Sanocrysin treatment was instituted on August 14th. The bacilli disappeared from the sputum after the fourth injection, which amounted to about 2·5 cg. per kg., and her weight rose to 44·9 kg. The sedimentation test on August 14th was: 1 hour, 23 mm.; 2 hours, 51 mm. On Feb. 2nd, 1930, it was: 1 hour, 6 mm.; 2 hours, 10 mm. Thus this patient, who had been treated in hospital and sanatorium for 16 months, was freed from tubercle bacilli in the sputum in 16 days by sanocrysin treatment.

FIG. 3.



Temperature chart showing effect of injections of sanocrysin (50 cg., 75 cg., &c.).

Date.	Dose of sanocrysin.	Temperature, deg. C.
August 14th	35 cg.	36·6–38·1
" 17th	50 "	36·8–37·8
" 21st	75 "	37·0–37·6
" 26th	100 "	37·0–38·4
Sept. 30th	75 "	37·3–38·4
Oct. 7th	75 "	37·3–38·2

(After the injection on August 26th there was a marked exanthem. Bacilli were found in the sputum for the last time on August 30th. Treatment was postponed on account of a non-specific angina.)

The effect of sanocrysin on tuberculous lymph glands is well illustrated by the following case.

A man, aged 24, had on admission enormous glandular swellings in the neck. The diagnosis was confirmed by microscopic examination of the gland tissue. His temperature was 40·2° C., and his weight 63·7 kg. As his temperature remained high, sanocrysin treatment was instituted, combined with serum. After two months his temperature was normal, and he remained well, his weight increasing to 78·8 kg. (Fig. 3).

Date.	Dose of sanocrysin.	Temperature, deg. C.
May 14th	50 cg. (serum)	40·1–40·0
15th	—	39·8–40·5
" 17th	75 cg. (serum)	37·7–39·3
" 20th	100 " "	38·2–39·9
" 27th	75 " "	37·3–40·5
June 4th	75 " "	36·8–40·2
6th	(Exanthem)	37·2–37·9
" 12th	—	37·2–37·9
" 13th	—	37·0–37·5

CONCLUSIONS.

Sanocrysin has now been used and discussed for about seven years, so that it is safe to estimate its value. In previous papers I have reported a large number of cases, and the accompanying table gives my aggregate results.

Type of case.	Well.		Improved.		Unchanged or worse.
Mild sputum-positive	10	60	—		—
Mild sputum-negative	50		—		—
Severe sputum-positive	23	44	56	65	—
Severe sputum-negative	21		9		—
Very severe	—		6		64
Pleurisy	86		5		—
Gland tuberculosis	18		—		—
Pulmonary tuberculosis in children	13		4		—
Totals	221		80		64

Statistics naturally depend on the selection of material; these figures include all the severe cases treated in the early experimental days. Actually, statistics cannot correctly represent the results of treatment; only the man who has worked with the patients realises how much is gained by using sanocrysin, even in the more severe cases, where the late results are often astonishingly good.

It is most important to institute the treatment as early as possible, as this will check the progress of the lesion in many cases. In the more severe forms of phthisis, sanocrysin can be used to great advantage in combination with such other methods as artificial pneumothorax and resection. Graveson has reported a number of cases treated in this way.

I use sanocrysin as a routine measure in tuberculous pleurisy; it cuts short the hospital period and does away with the old familiar type of case that needed months and months of treatment. It is really almost a "radical" treatment in the sense that it acts on the focus of the lesion, whether this be in the lungs or in the glands. The late results are very encouraging. I regard it as the best remedy that we have at the present time, and believe that its use will mean recovery for many patients who would otherwise be without hope, and considerable curtailment of the course of the illness for many others.

SANOCRYSIN IN PULMONARY TUBERCULOSIS.*

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SANOCRYSIN—a double thiosulphate of gold and sodium—has been tried by me on 36 adult patients suffering from pulmonary tuberculosis selected from 320 cases treated since August, 1929, at the High Carley Sanatorium, Ulverston, Lancashire. The broad indication for the use of the drug has been in patients not improving with sanatorium treatment and at the same time unsuitable for artificial pneumothorax treatment. Within narrower limits, sanocrysin is useful in any case returning a persistently positive sputum, with a view to clearing up the tubercle bacilli, and for any patient in whom the induction of artificial pneumothorax has failed. Further, it may be used in conjunction with artificial pneumothorax treatment if the disease is bilateral, the induction being made on the side showing the more extensive disease.

H. Mollgaard, who first introduced the drug in 1923, claims that it does most good in the exudative type of case. I have not, however, confined its use to these, for I have obtained good results in cases with fibrosis. It is very difficult to differentiate between the two types, and one often meets a mixed type with both fibrosis and exudation.

ADMINISTRATION.

Sanocrysin is dissolved in 10 to 15 c.cm. of sterile distilled water, depending on the amount to be given. A 20 c.cm. record syringe with an eccentric nozzle and a Weintraud needle is used. This is a moderately short needle with a short point and a square mount. It is very convenient to use, for it does not tend to lacerate the wall of the vein. The site of injection is a superficial vein at the bend of the elbow. In women this is sometimes difficult to find, and occasionally I have had to use the external jugular vein.

No rigid system of dosage can be laid down; the more experience one obtains with the drug, the more one is impressed by the rule to "make haste slowly." The dosage should be regulated entirely by the reaction of the patient. In an undersized person, with poor resistance and perhaps an unsteady temperature, one should start with very small amounts —i.e., 0·025 g.—and very gradually increase the dose. In the average case an initial dose of 0·05 g. is given and, in the absence of reactions, is increased to the maximum of 0·75 g. The smaller doses should be given at intervals of four to five days, and large doses at intervals of seven to ten days. I have occasionally given maximum doses of 1·0 g., but I have nearly always regretted it, owing to the severity of the reaction produced. I have now discontinued giving patients doses larger than 0·75 g.

A patient may be considered to have had a complete course when from 5 to 6·5 g. have been given, although in several cases of the series it was only possible to give 3 to 4 g., nevertheless with moderately good results. The length of time taken to complete a course depends on the toleration of the patient to the drug. An uneventful course takes from 12 to 15 weeks to complete, but it may take much longer; for instance, one case I had took 33 weeks to complete a full course, and the results fully justified the length of time taken. Patients are kept in bed 24 hours after the injection, and if there is no reaction they are allowed to get up at the end of that time.

REACTIONS.

The great disadvantage of sanocrysin is the liability to reactions, but if it is administered with due caution these can be considerably lessened. They may be severe at times, but they almost always clear up fairly quickly. Albuminuria occurs in a large proportion of cases, but it is usually slight; occasionally the urine may be heavily laden with albumin. I have never had a case in which it lasted longer than nine days. Diarrhœa is a frequent complication, and for this reason I think sanocrysin is contraindicated in tuberculous enteritis. Vomiting may occur, and is by no means infrequent almost immediately after the injection. Headache is often complained of, but it usually clears up, at the latest, on the day following the injection. Superficial ulcers of the mouth and lips are by no means rare. A variety of rashes is caused by sanocrysin. Erythema is very common and may be local or spread over the whole body; it is often associated with itching, and the rash is frequently followed by desquamation.

A most troublesome case was one in which several of the toes of both feet became gangrenous at the tips, associated with severe cramping pains along the course of the arteries of the lower extremities. The gangrenous condition persisted for several months, but ultimately cleared up. The pains in the limbs persisted, however, for over 12 months. The symptoms in this case rather suggested an obliterative endarteritis. Another patient had severe herpes on the side of the neck spreading up to the hair on the back of the scalp and extending downwards over the shoulder. This was followed by deep ulceration which left a good deal of scarring. The temperature is often raised for two or three days after an injection, and may occasionally persist for a longer time. Rigors may occur, but they are very rare.

There are two views as to the cause of the reactions produced by sanocrysin: some medical men regard them as due to the liberation of toxins of the tubercle bacilli at the site of the disease. In support of this, Secher[1] maintained that erythema is produced in pleurisy and in those cases where the lung lesion is "closed," whereas in an "open case" there is no erythema, but I do not believe many will agree with this. Secher used large doses of sanocrysin in conjunction with an antitoxic serum prepared by Mollgaard to counteract reactions.

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* Paper read before the North-Western Tuberculosis Society.

The other view is that the toxic effects are due to metallic poisoning by gold. Certainly many of the reactions produced, such as ulceration of the mouth, albuminuria, diarrhœa and vomiting, closely resemble the results produced by other heavy metals—e.g., mercury and lead. Oekonomopoulo,[2] in support of this view, has stated that the sedimentation test is the same before and 24 hours after the injection, thus showing that there is no increase in the tissue destruction of the body. He also found that the Pirquet test was the same before as after a dose of sanocrysin, and argued that if sanocrysin had a bacteriolytic action, then the body would be inundated with toxins and the Pirquet would become negative. But this is not so; therefore, sanocrysin does not liberate the toxins of the tubercle bacilli, and the reactions are due to metallic intoxication.

RESULTS.

Of my 36 patients, eight did not complete a full course, owing to the severity of the reactions produced or because it did not appear to be doing any good. As a matter of fact, in one of the eight cases it appeared to do definite harm, and I think was undoubtedly the cause of lighting up the disease. Clarke[3] has reported a case in which he believed sanocrysin definitely hastened the end. This leaves a total of 28 patients who completed a full course of treatment, and their classification was: 3 T.B. minus and 25 T.P. positive (5 T.B. plus 1; 17 T.B. plus 2 and 3 T.B. plus 3). The results of treatment were: 22 improved and 6 stationary.

In attempting to assess the results of the treatment it is as well at the outset to disregard the subjective sensations of the patients, because almost invariably they declare themselves improved with any form of drug treatment, especially if it necessitates the use of a needle. Too much stress should not be laid on physical signs, as in my opinion these tend to become more elusive as time goes on; this I think is a fairly common experience.

The sputum examination affords a reliable indication of the progress of the patient, for it can be said that sanocrysin has a definite and immediate effect in a large proportion of patients in causing the disappearance of the tubercle bacilli from the sputum; where the tubercle bacilli do not entirely disappear their number is much less after sanocrysin. Of the 25 patients with a positive sputum 13 became negative after a course of sanocrysin, giving a bacillary loss of 52 per cent. This percentage compares very favourably with an average of 20 per cent. bacillary loss for patients who were discharged from High Carley after sanatorium treatment alone. In addition to bacillary loss, the amount of sputum tends to become less. The loss of tubercle bacilli from the sputum is not always permanent, and where it becomes positive again, a second course of sanocrysin is indicated. But it is not common in my experience for the sputum to become negative a second time. In one case in this series the sputum remained positive after three years' continuous sanatorium treatment; then after a course of sanocrysin treatment it became negative. More than 12 months have elapsed since this patient completed the course of sanocrysin, but the sputum is still negative and the patient able to work.

There is a tendency for the temperature and pulse to become steadier after sanocrysin treatment, especially in those cases which had a slight temperature of, say, 99·6° to 99·8° in the evenings.

The sedimentation test before and after sanocrysin is a useful indication of the improvement or otherwise of the patient. Cutler[4] regards it as an index of the amount of tissue destruction going on in the body. The technique I have employed is a modification of the Cummings method; 4 parts of blood to 1 part of 3·8 per cent. sodium citrate mixed thoroughly in a wax-coated watch glass, the mixture drawn up into a length of barometer tubing and allowed to stand for one hour. The height of the column of red cells was measured and expressed as a percentage of the whole column of fluid. In one patient before sanocrysin treatment the column of red cells after standing one hour represented 45 per cent. of the whole column of fluid, whereas after sanocrysin the column of red cells, after standing one hour, was 78 per cent. of the whole. Thus there was a diminution in the rate of fall to the extent of 33 per cent. The figure for the whole series showed an average diminution of the rate of fall of the red cells of 18 per cent. after sanocrysin. This figure is very striking, and proves that sanocrysin has a beneficial effect in pulmonary tuberculosis. To check the accuracy of the test, 16 control tests were done on patients undergoing sanatorium treatment alone, and there was an average diminution of the rate of fall of only 4 per cent. after three months, as against 18 per cent. in the sanocrysin cases. On the other hand, sanocrysin-treated patients who do not improve usually show a marked acceleration in the rate of fall of the red cells. One patient, who showed an increase of 20 per cent. in the rate of fall after sanocrysin, died four months later as a result of a hæmorrhage.

Patients do not as a rule put on weight during treatment with sanocrysin. In this series of 28 cases, 66 per cent. lost weight, but this is only to be expected with a drug possessing toxic properties.

Allowing for pitfalls when comparing two skiagrams which are not absolutely of the same density, I think sanocrysin cases show more rapid improvement in the X ray picture than patients who have sanatorium treatment alone. Sometimes there is quite a marked improvement in the skiagram; after sanocrysin the areas of disease become less dense and more localised, and they tend to shrink. In fibrotic cases with surrounding exudative lesions there is frequently a clearing-up of the exudative part of the lesion.

AFTER-HISTORY.

Of the 28 cases, 15 completed the course a year or more ago. Their histories have been followed up, and the general condition of two is described as good, two improved, six stationary, four unsatisfactory, and one dead. Of the 14 survivors, six are fit for work and eight are unfit. The fact that six of the 14 are at present working, I think, indicates that the effects of the drug are to a certain extent lasting. Again, of these 14 cases, 13 had tubercle bacilli in their sputum, and the other was negative. Seven lost the tubercle bacilli as the result of the sanocrysin treatment, four of them are still negative, but three who became negative have again become positive. The remaining seven who did not lose their tubercle bacilli after sanocrysin are still positive.

These figures compare favourably with the cases that were discharged after ordinary sanatorium treatment. As stated previously, the selection of my group of 28 cases was made because they were not improving with ordinary sanatorium treatment, and in some of them the disease had become more widespread during sanatorium treatment alone.

SUMMARY.

The results obtained in this series of cases lead me to conclude that sanocrysin has a definite place in the treatment of pulmonary tuberculosis. I will summarise as follows:—

1. Sanocrysin treatment is the most useful adjunct to sanatorium treatment next to artificial pneumothorax. This opinion is based on a trial of the drug on 28 patients at the High Carley Sanatorium.
2. Reactions may be reduced to a minimum by careful spacing and slow increase of the doses. Its use in any specific case should not be abandoned without a careful trial.
3. The rate of fall in the red blood-cells is considerably retarded after sanocrysin treatment, as revealed by sedimentation tests, the average rate of retardation being 18 per cent. in the sanocrysin cases and 4 per cent. in cases receiving sanatorium treatment alone.
4. There is a definite improvement in the X ray picture after sanocrysin in a large proportion of cases.
5. It has a definite effect on the sputum in causing the disappearance of tubercle bacilli; 52 per cent. of the sanocrysin cases lost their tubercle bacilli, compared with 20 per cent. bacillary loss in cases receiving sanatorium treatment alone.
6. The effect of sanocrysin is to a certain extent lasting, as six out of the 15 cases are at work twelve months or more after completing a course of sanocrysin, and in four of the original sputum-positive cases the sputum is negative.

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VARIATIONS IN THE ANTIGEN CONTENT OF SERUM IN DISEASE.

BY A. Q. WELLS, D.M. OXF.

(From the Department of Pathology, University of Cambridge.)

Dean and Webb[1] have shown that, in the serum precipitation reaction, antigen and antibody unite in optimal proportions. They used falling dilutions of antigenic serum added to a constant dilution of antiserum. The tube first showing particulation is called the optimal tube. This tube has a definite antigen-antibody ratio, which is the ratio of the antiserum. If the amount and dilution of the antiserum are kept constant, it follows that a decrease in the ratio figure indicates a fall in antigen content of the antigenic serum, and conversely a rise in the ratio figure indicates a rise in the antigen content.

The methods of Dean and Webb have been used in the preliminary experiments here reported. These deal with the variation in antigen content of normal and abnormal sera, and an attempt has been made in one case to correlate the antigen content with the total protein content. In all cases the antisera have been produced in rabbits by the intraperitoneal injection of the appropriate serum.

THE ANTIGEN CONTENT OF NORMAL SERA.

The serum from eight different normal sheep were titrated against an anti-sheep serum; all gave the same ratio. The serum from six different normal hens were titrated against an anti-hen serum; all gave the same ratio. The serum from 13 different normal men were titrated, four against one anti-human serum, and nine against another anti-human serum. The antigenic sera were from men of varying ages, research workers, medical students, and laboratory assistants, all of whom were in good health, the first group of four being chosen as belonging one to each of the four blood-groups. The sera in the two groups gave the same ratio with their respective antiserum. In the two different antisera used, the antigen-antibody ratio of one differed widely from that of the other. An attempt was made to see if the antibody was the same in the two antisera, by mixing them in equal dilutions and titrating human serum against the mixture. According to Taylor[2] the result of mixing two similar antisera should be a ratio which is the harmonic mean of the two separate antisera—i.e., the ratio should be $\frac{2XY}{X+Y}$, where X is the ratio of one antiserum and Y is the ratio of the other. In this case, however, the result was two zones, whose ratios corresponded fairly closely to twice the ratio of each separate antiserum. Now each antiserum, if acting alone, is in twice the dilution indicated, the diluent being the other antiserum. It would appear, then that these two antisera contained different antibodies, probably reacting with two different antigens.

THE ANTIGEN CONTENT OF ABNORMAL SERA.

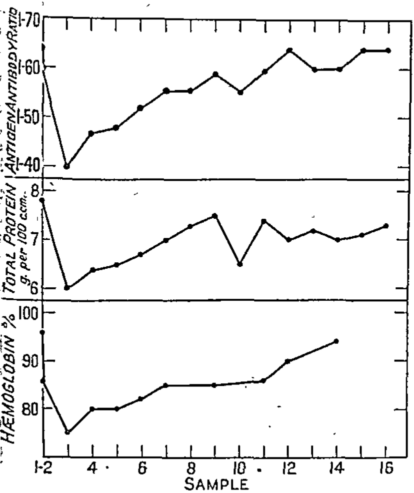
The constancy of the results obtained with normal sera, although the number of normal sera as yet examined has not been large, suggested the possibility that sera from cases of disease might show variations from normal. Accordingly the sera from four men suffering from nephritis were titrated against the same two anti-human sera used in the experiments cited above. These gave results differing markedly from those obtained with normal human serum. The figures are given in the following Table.

Antigenic serum.	*Anti-human serum 1092H.*	*Anti-human serum 1384C.*
Normal	1–13	1–4·5
Nephritic 1	1–8	1–8
Nephritic 2	1–7	1–8
Nephritic 3	1–10	1–6
Nephritic 4	1–8	1–7

It is seen that according to one antiserum the antigen content of the nephritic serum is decreased, while according to the other antiserum it is increased. This apparent anomaly is discussed later.

The mixture of equal amounts and dilutions of normal and nephritic sera titrated against each of the antisera gave a ratio midway between the ratio of each separate serum. This would indicate that the antigen is the same in the two sera. An association between the change shown by the serum precipitation reaction with the normal and nephritic sera, and the anæmia which is common in cases of nephritis presented itself as a possible explanation. It appeared desirable to investigate serum from an animal in which an anæmia had been produced by hæmorrhage. Dr. R. G. White, of the Belmont Laboratories, very kindly undertook to provide samples of blood and of serum taken from a horse immediately before and at intervals after a considerable bleeding. The horse, a normal one, was bled to provide serum for Löffler's medium. After sample 1 had been taken, 11 litres were removed from the jugular vein. Sample 2 was obtained at the end of the bleeding, about 45 minutes after sample 1. The subsequent samples were obtained at daily intervals.

The hæmoglobin percentage was determined in each blood sample by Haldane's method. The antigen content of each sample was determined by means of an anti-horse serum. In order to make sure that the antibody content of the antiserum had not fallen during storage, as is known to occur in some antisera, it was tested against normal horse serum on each occasion that a sample or samples were tested. The total protein content in each serum sample was determined refractometrically by Dr. L. F. Hewitt, of the Belmont Laboratories, to whom I am much indebted for his figures. The results are best shown in graphic form (see Figure).



The top curve shows the antigen-antibody ratio of the serum; the middle curve shows the total protein content of the serum; and the bottom curve the hæmoglobin percentage of the blood. The interval between samples 1 and 2 is 45 minutes, during which time the horse was bled 11 litres. The interval between each other sample is 24 hours.

DISCUSSION AND CONCLUSIONS.

Dean and Webb titrated seven samples of normal horse serum with anti-horse serum, and found the ratio to be the same in each case. Although the number of normal sera reported upon here is small, it appears to confirm the findings of Dean and Webb that the antigen content of any one species is remarkably constant under normal conditions.

In the experiments with human serum, the appearance of two zones in the mixture of two antisera suggests that there are two antigens and two antibodies at work. If this view is accepted, it would seem to be a very likely explanation of the multiple zones occurring in some antisera, and reported by Goldsworthy.[3] It is known that serum albumin and serum globulin can act as antigens, and it seems possible that some rabbits react against albumin, and others against globulin. Whether there are other antigens in serum, and if so how many, is not relevant to the present discussion. If one of the antisera used contained anti-albumin bodies and the other anti-globulin bodies, then the results obtained with the nephritic sera are easily explained. It is known that in some nephritic sera the albumin content is decreased and the globulin content normal or increased. Peters and van Slyke[4] and Harrison[5] give the following figures:—

	Albumin.	Globulin.
Normal—		
Peters and van Slyke ..	3·77–5·24%	1·02–3·51%
Harrison	3·4 –6·7%	1·2 –2·0%
Nephritic—		
Peters and van Slyke ..	0·6 –4·6%	2 –3·4%
Harrison	1·51–6%	1·1 –3·55%

Thus the figures obtained by chemical analysis would be compatible with those obtained by the serum precipitation reaction. These preliminary investigations suggest that antisera against extracted serum albumin and serum globulin may give interesting results in some cases of disease. The reaction promises to give an easy method of determining the protein content of a fluid.

In the experiments with horse serum, it is seen that the antigen curve and the total protein curve follow each other remarkably closely. Sample 10 showed a drop in both curves. It was noted in collecting the sample that No. 10 clotted unusually slowly—about seven hours passed before the clot separated. The explanation of this is not apparent.

The results obtained are too few to justify far-reaching conclusions. It appears possible, indeed probable, that the method of optimal proportions may be applied to the antigenic analysis of sera from cases of disease and that variations from the normal may be expected. The work will be continued and it is obvious that a large number of observations on both normal and abnormal sera must be made before any definite conclusion can be drawn.

SUMMARY.

(1) The sera from various animals and from man have been titrated against the appropriate antisera. The antigen content of each species has been constant.

(2) Antisera against any one serum do not always contain the same antibody. It is suggested that two anti-human sera contained, in one case anti-albumin bodies, and in the other anti-globulin bodies.

(3) The serum from some nephritic patients differed markedly from normal human sera in their antigen content.

(4) The antigen content and the total protein content in the serum of a horse after severe bleeding showed remarkable agreement.

I am much indebted to Prof. F. R. Fraser, of St. Bartholomew's Hospital, and to Dr. G. S. Haynes, of Addenbrooke's Hospital, Cambridge, for kindly supplying me with the sera from the cases of nephritis.

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Hospital Memorial Tablets.—Sir William Goschen, chairman of the London Hospital, recently unveiled a tablet over the Paramount Philanthropic Society's bed in an accident ward of the hospital in memory of the late chairman, Lord Knutsford. The tablet, which has been erected by the society, states that the bed is maintained "in ever grateful memory of Viscount Knutsford's wonderful example." Last week Dame Madge Kendal unveiled a tablet in Grimsby Hospital commemorating her endowment of a bed in memory of her husband, the late Mr. W. H. Kendal.

dioxide dissolved in the chloroform. A test suggested by Utz, in which chloroform is treated with benzidine for 24 hours in the dark, yields a slight turbidity with about 5 parts per million, which is rather more delicate; but a general reaction given by mixtures of phenols and aldehydes with condensing agents was found by Allport to be more delicate and rapid. The reagents chosen are resorcinol and vanillin. To 15 c.cm. of medicinal chloroform contained in a dry stoppered bottle of about 25 c.cm. capacity add 20 mg. each of resorcinol and vanillin. Replace the stopper and when the reagents have dissolved, set the bottle aside in a dark place for one hour. Add 5 c.cm. of 1 per cent. aqueous ammonia solution, shake and allow the mixture to separate. When there has been prior formation of phosgene or in the presence of hydrochloric acid a pink or red colour develops in the aqueous layer, reaching its full value in about 30 seconds, its intensity varies with the quantity of impurity present. The presence of alcohol is necessary for the development of the colour, which is given strongly by as little as 1 part per million of phosgene, blank tests with pure chloroform showing no colour at all until after about two minutes when the liquid darkens by reason of the resorcinol present. The presence of even a small amount of phosgene in a drug which is used to produce anæsthesia seems very undesirable and this new test should be of value in deciding whether a sample is suitable for this purpose.

ANOTHER FIELD EXPERIMENT WITH PLASMOQUINE.

THE gametocidal action of plasmoquine has become familiar, partly as the result of experimental work done at the Institute for Medical Research, Kuala Lumpur, F.M.S., of which Dr. A. Neave Kingsbury is director. This property is especially noticeable in its action upon the gametocytes of *Plasmodium falciparum*, and to a lesser extent upon those of *P. vivax* and *P. malariæ*. There now seems good reason to believe that malaria, at all events of the subtertian variety, might be eradicated from an isolated population by regular plasmoquine dosage. How this was put to the test under working conditions in an extensive field experiment lasting one year is described by Dr. Kingsbury in a report from the Institute which has just reached us. A malarious rubber estate, having a population of about 330 labourers and dependents, was chosen for the test, and two neighbouring estates with populations of 360 and 400 were selected as controls. Parasite and spleen rates, and hæmoglobin percentages were determined on both just before the commencement of the test, and thereafter at quarterly intervals. Plasmoquine 0·04 g. was given to adults twice weekly, on Mondays and Thursdays, appropriate smaller doses to children down to 6 years of age, and to infants an emulsion of the drug from a graduated pipette. Well over 90 per cent. of the population received plasmoquine on practically every treatment day. The experiment was handicapped by the present unfortunate conditions on rubber estates, and the experimental estate was not absolutely isolated, for in the evenings there was some exchange of visits with neighbouring estates, thus making it possible for an occasional gametocyte carrier to infect anophelines in the experimental area. Nevertheless during the year among the original population the parasite rate on the experimental estate fell from 27·2 to 17·4 per cent., and the gametocyte rate for *P. falciparum* from 10·6 per cent. to nil, the spleen rate remaining fairly constant, and the hæmoglobin showing a small rise from 66 to 70 per cent. Based on the total number of labourers and dependents throughout the experimental period the parasite rate fell from 28·2 to 20·2 per cent. On the first control estate the parasite rate rose from 22·9 to 23·8 per cent. during the year, and although the spleen rate remained constant, the average hæmoglobin fell. On the second control estate, too, the parasite rate fell from 17·2 to 13·7 per cent.; the spleen rate also showed a slight fall, but the hæmoglobin remained constant. In view of all the possibilities of extraneous infection the reduction of the parasite rate within a year from 28 to 17 per cent. indicates that the plasmoquine was of definite value; though the results fall somewhat short of expectation. Only one instance of idiosyncrasy to plasmoquine was noted—an elderly male who developed gastric symptoms, combined with albuminuria, after the first dose. His spleen was greatly enlarged, and his hæmoglobin percentage was 90. After a period of treatment he was able to take plasmoquine 0·02 g. twice weekly.

INTRAMUSCULAR ADMINISTRATION OF LIVER EXTRACT AND THE RETICULOCYTE CRISIS.

DURING the last few months we have repeatedly made mention of both the theoretical and practical value of parenteral administration of liver extracts in pernicious anæmia. M. Gänssten, who was the first to use intramuscular injections extensively,[1] has now summarised his conclusions[2] from a study of 100 successfully treated cases, though unfortunately he provides no details of the blood examinations which lessens the value of the work. He gives a daily injection of extract made from 5 g. of liver, only rarely finding it necessary to increase the dose to an equivalent of 400 g. of liver, until a normal blood count is reached, usually in five to eight weeks. The injections are then reduced to once a week, with a larger dose once a fortnight. This method has obvious advantages in treating ambulant patients, and he concludes from its success that the body is capable of storing the essential principle. Relapses associated with some intercurrent infection occurred in most of the cases two to four months after cessation of treatment. A few patients were well as long as 12 months without any form of liver, but remissions of this kind were noted before the introduction of liver and cannot therefore be considered as evidence of a storage mechanism. Gänssten has had no failures, and attributes reported liver-resistant cases as due to faulty diagnosis or insufficient dosage; in this he agrees with other workers who have had an extensive experience of liver treatment. He offers no data to support the claim that intramuscular extracts are of value in secondary anæmias, especially those of gynæcological origin. His attack on the value of the reticulocyte crisis as a measure of the effectiveness of treatment does not appear justified by his own evidence. He found that there might be a rise in the reticulocyte count with no rise in the total red cell count in patients with acholuric jaundice treated with liver extracts by intramuscular injection. Since, however, the reticulocyte count may be as high as 65 per cent. in untreated cases in this condition (Dawson[3]), such observations need careful control. He also obtained a reticulocyte response in adult rats on giving tryptophane, histidine, and extracts which were ineffective in pernicious anæmia. Since the reticulocyte count in the young rat anyhow may vary between 0·3 per cent. and 6·9 per cent. (J. M. Vaughan), and he gives no figures for his normals and few for his treated rats, too great stress must not be laid on his conclusions. Indeed, G. H. Minot and C. W. Heath [4] have lately shown that the reticulocyte count can be used as a satisfactory index of the success of iron as well as liver therapy, giving a distinct type of curve, and all observers, apart from Gänssten, are in agreement as to its value in assessing the response to treatment in pernicious anæmia.

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[1] Verhandl. d. Deut. Gesellsch. f. Inn. Med., 1930, xlii., 524.

[2] Deut. med. Woch., Nov. 13th, p. 1926.

[3] Brit. Med. Jour., 1931, i., 921.

L.C.C. AND MARRIED WOMEN DOCTORS.

THE London County Council recently discussed at some length the question whether or not it should relax its standing orders in order to allow married medical women to be appointed to posts in its service, or permit single women to remain at work after marriage. The debate arose directly as a result of a resolution forwarded by the Medical Women's Federation. On behalf of the women, it was urged that dual appointments—e.g., the man being master and his wife being matron of a workhouse or residential school—were already sanctioned, and that it was a scandalous thing to put a woman in a position where the only way of retaining her work might be cohabitation without marriage. Reference was also made to the specialised experience medical women obtained in the Council's service and the loss which would be suffered by the community if they were compulsorily retired on marriage. Sir William Ray said that, apart from the impossibility of making exceptions for medical women, the position was really governed by economic circumstances and the state of unemployment in the profession. The Council, he declared, had no difficulty in recruiting adequate numbers of single women for all posts at its disposal. Mr. Cyril Jacobs, Chairman of the General Purposes Committee, said the attitude taken up by the Council was supported by many outside bodies and represented the fairest method of distribution of employment. If exceptions were made for women doctors, it would be difficult to maintain the Council's standing order in regard to other women members of the staff. The report of the committee, stating that it would be undesirable to disturb this policy, was carried by 73 votes to 42.

STANDARDISATION OF ERGOT.

SINCE the fifth British Pharmacopœia was published, in 1914, conviction has been growing that the therapeutic value of ergot is due to the specific alkaloid contained, rather than to the presence of amines, histamine, and tyramine. A special subcommittee of the Pharmacopœia Commission has been busy with the standardisation of ergot preparations, in view of the wide variation found in the alkaloidal content of ergot of rye. This committee, of which Dr. J. H. Burn is chairman, has come to the conclusion that the colorimetric method permits an accurate estimation of total alkaloid in ergot itself and in its liquid extract, even though the colour test is given equally by the physiologically active ergotoxine and the physiologically inactive ergotinine. The colorimetric method has the advantage over gravimetric methods in taking less time and less material, and biological methods of assay are subject to a considerable margin of error. Ergotoxine is regarded by the committee as the active principle for which ergot preparations are administered, and the following standards are suggested for adoption :—

Extractum Ergotæ Liquidum to contain 0·05 per cent. of total alkaloid (±0·01 per cent.).

Ergota Præparata to contain 0·10 per cent. of total alkaloid (±0·02 per cent.).

The report can be obtained for 1*s.* 6*d.* from the Secretary of the Pharmacopœia Commission, at the office of the General Medical Council, 44, Hallam-street, London, W. 1.

RIFT VALLEY FEVER.

THE enzoötic hepatitis discovered last summer in sheep, especially new-born lambs, on the shores of Lake Naivasha, Kenya, by Mr. R. Daubney and his co-workers,[1] seems not to have been quite so new as at first supposed ; it appears from the evidence of Mr. R. E. Montgomery that a similar epidemic was noted nearly 20 years ago. The 1930 outbreak in the Rift Valley, however, was a severe one, for in the course of seven weeks some 3500 lambs and 1200 ewes died from acute necrosis of the liver. Attempts to transmit the disease to sheep and lambs soon demonstrated the fact that the ætiological factor was a filtrable virus ; in addition to sheep, goats and cattle were found to be susceptible, whilst a natural outbreak was observed in a dairy-herd on a farm in Solai, also in the Rift Valley. The virus, preserved in oxalate-carbol-glycerin, was brought to this country by Mr. Daubney and examined by Dr. G. M. Findlay at the Wellcome Physiological Research Laboratories, Beckenham. An account of this work was given at a meeting of the Royal Society of Tropical Medicine and Hygiene on Dec. 10th, and is summarised by Dr. Findlay and Mr. Daubney on p. 1350 of this issue. The virus was still in excellent condition, for after two inoculated lambs had died within 36 hours with typical pathological changes, Major T. Dalling, M.R.C.V.S., who performed the autopsies, became acutely ill five and a half days later with rigors, fever to 103° F., headache, and pains in back, and his assistant also developed similar symptoms. Both of these illnesses were shown to be due to the virus of Rift Valley fever. Mice and rats, and a number of wild rodents were found highly susceptible to the virus both by intraperitoneal injection and through the freshly shaven skin or conjunctival sac. Rabbits, guinea-pigs, and birds are insusceptible. Monkeys although not immune do not react so readily. After a series of 56 passages through mice, it was still possible to produce the characteristics of the disease in rodents—fever, leucopenia, and focal necrosis in the liver. In man the illness resembles in many respects dengue and sandfly fever, and apart from obvious infections with the virus, it is possible to acquire immunity, as in many other diseases, without manifesting symptoms of ill-health. Dr. Findlay became immune as a result of working with the virus although he had no attack of fever. The blood changes also resemble those of dengue : an initial leucocytosis, involving chiefly the polymorphonuclears, followed by a leucopenia. After the temperature has fallen a few myelocytes may be seen in the blood film. The changes in the liver are those of focal necrosis in which may be found degenerated polymorphonuclears and hyaline degeneration of the protoplasm. Acidophilic globules are present in the livers of the sheep, goats, and some rats. Apart from its great general interest the study of this new disease has a practical bearing on that of yellow fever. Though superficially similar, the two diseases are really quite distinct. Although the virus behaves in many ways outside the body as yellow fever does, yet monkeys immune to yellow fever are susceptible to Rift Valley fever, and human immune yellow fever serum does not protect mice against the virus of Rift Valley fever. Neither does dengue-immune or psittacosis-immune serum protect mice against infection.

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[4] Trans. Assoc. Amer. Phys., 1931, xlvi., 290.

[1] See THE LANCET, Sept. 12th, p. 601.

A VIEW OF THE ANÆSTHESIA PROBLEM.

Some criticisms that are sensible and some that seem curiously old-fashioned are contained in an article[1] on the Present Status of the Anæsthesia Problem, by Dr. A. D. Bevan, of Chicago. Dr. Bevan makes a laudable attempt to simplify the whole question of anæsthesia, and to determine, by the way in which they answer nine requirements, which he details, the respective merits of the various agents and methods. The conclusions at which he arrives are probably correct, having regard to the conditions under which he has made his trial. They will not meet with general approval elsewhere. Dr. Bevan decides that local anæsthesia, gas anæsthesia by nitrous oxide or ethylene, and ether anæsthesia are, generally speaking, the only admissible methods. Spinal, intratracheal, and the use of basal narcotics are all pronounced too dangerous for any but very limited employment. Dr. Bevan is sure of general support in his contention that "anæsthesia must be placed in the hands of trained experts"; less sure of it when, in spite of this, he places the choice of the anæsthetic and complete responsibility in the hands of the surgeon. Dr. Bevan appears to us to have under-estimated the harm of prolonged ether inhalations, and to have over-estimated the danger of the proper use of methods which are now employed to avoid those after-effects.

CENTENARIANS.[2]

Centenarians are not nearly so common as is popularly believed, and the claims of many to the distinction will not bear investigation, though they are usually admitted. In recounting the lives of a short group of them Mr. Forbes Gray has been able to establish their right to the title without doubt or difficulty, and has attempted to concentrate on those aspects of their careers which shed light on the problem of longevity. He lays stress, that is, upon everything of psychological significance. He takes as examples of abnormal duration of life that warlike prelate, Leslie Bishop of Raphoe; a diplomatist, Richard Bulstrode, the devoted follower of the House of Stewart; a dramatist and actor, Charles Macklin, the introducer of "natural acting"; a scholar, Routh, the famous President of Magdalen, Oxford, who, by the way, died in his hundredth year as the author notes; a philanthropist, Sir Moses Montefiore; a physician, Sir Henry Pitman; a musician, Manual Garcia; a general, Sir George Higginson; and an admiral, Sir Provo Wallis. In the last chapter the lives of three women are recorded, the largest space being devoted to the description of Mrs. Haldane, the remarkable mother of the recent Lord Chancellor, Viscount Haldane, and of Prof. J. S. Haldane. The other two women centenarians are Lady Smith, the wife of James Smith, the botanist, and the Hon. Katharine Plunket, the still surviving daughter of the second Lord Plunket, Bishop of Tuam. Miss Plunket was born in 1820, and her fully established record makes of her a remarkable example. For Thoms's "Longevity of Man," a conscientious inquiry into some of the more striking instances of longevity that have been put on record, has much reduced the list of undoubted centenarians with sensational claims. For sometimes on what is practically no evidence at all, though with much suggestive support, men and women have gone down in popular history as phenomenally aged. The autopsy of "old Parr," most famous of these historic characters, was made by Harvey, as is recorded in the Sydenham Society's edition of Harvey's works, and Harvey accepted apparently the popular belief that Parr was born in the reign of Edward IV. This would have made him 150 years, at least, at the date of his death, but Thoms points out that, in spite of the wealth of detail apparently supporting this incredible longevity, nothing is proved beyond the fact that Parr was a very old man, probably just a centenarian.

BIRMINGHAM MEDICAL DINNER.

The special feature of the dinner of the Birmingham Medical School to be held in the Grosvenor Rooms, Grand Hotel, Birmingham, on Jan. 28th, will be a presentation to Prof. Leonard Gamgee by his past students upon his retirement from the chair of surgery. Prof. Gamgee was appointed assistant surgeon to the General Hospital in 1893, and became professor of surgery in 1919. Many students have passed through his hands and there is a general consensus of opinion that something should be done to mark his retirement. His work as surgeon and teacher has added greatly to the prestige of hospital and medical school; he has always loved teaching students and there must be many now in practice who would like to show their appreciation for all that he has done for them. Donations limited to £1 1s. and applications for dinner tickets (10s.) should be sent to Mr. Cyril Raison, F.R.C.S., 15, Cornwall-street, Birmingham.

At a meeting on Dec. 10th, the Council of the Royal College of Surgeons of England considered the resolution adopted by the annual meeting of Fellows and Members affirming "that it is essential that Members, who constitute nine-tenths of the College, should be admitted to direct representation on the Council." In reply to this resolution the Council announced that they adhere to the opinion which they expressed last January.

Sir Arthur Stanley, chairman of the executive committee of the British Red Cross Society and Treasurer of St. Thomas's Hospital, has consented to become chairman of the Research Defence Society. This office was held by Lord Knutsford from the foundation of the Society in 1908 until his death last July. Prof. A. V. Hill, F.R.S., will occupy the post of vice-chairman which has been vacant since the death of Mr. Stephen Paget, founder of the Society, in 1926.

Application is invited for the post of dean of the new British Post-Graduate Medical School. Particulars will be found in our advertisement columns.

We regret to announce the death of Dr. J. A. Lindsay, consulting physician to the Royal Victoria Hospital, Belfast, and emeritus professor of medicine in Queen's University, Belfast. He died on Monday last in his 76th year.

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[1] Jour. Amer. Med. Assoc., Nov. 21st, p. 1530.

[2] Five Score: A Group of Famous Centenarians. By W. Forbes Gray. London: John Murray. 1931. Pp. 322. 12s.

PUBLIC HEALTH SERVICES

THE MENTAL DEFICIENCY PROBLEM

AND ECONOMY IN THE SOCIAL SERVICES.

THE present financial stress raises afresh the problem of mental deficiency. There is a danger that the state of public affairs will delay or even cause the abandonment of schemes already devised for making provision for the feeble-minded. These schemes are often unpopular, they involve a large capital outlay, and few people realise the urgency of the matter. Nor is it generally understood how costly to the community are defectives at large in society. In times of serious trouble humanitarian efforts slacken, and if the State cannot afford to make provision the weak and ailing will suffer. Public calamity involves regression, for we cannot escape the inexorable law of survival in hard and perilous times.

THE COLONY AND ITS ECONOMIC PLANNING.

Thus at the moment the economic test must prevail and the problem is what is the least costly method of dealing with mental deficiency? One aspect of this is dealt with in the report [1] of a Departmental Committee appointed by the Board of Control under the chairmanship of Mr. Walter Hedley, K.C. The committee were appointed to consider a report "what are the essential structural requirements of a complete colony for mental defectives of all types"; they were also to consider "how the capital expenditure might be reduced by the adoption of temporary buildings and other new methods of construction."

As regards size, the committee recommend that the minimum size of a complete colony should contain 880 beds. This provides for the classification of adults into five groups of each sex, in separate buildings accommodating 60 patients in each, with two smaller buildings for the more troublesome, with 40 beds in each. In addition, there would be four homes for children, with 50 beds in each, and a hospital block providing for 20 patients of each sex. A colony of this size is perhaps the smallest that would justify the appointment of a resident medical superintendent. The committee further suggest that the maximum size of such a colony should be in the neighbourhood of 1270; the individual units should not be larger, but the greater numbers would permit more efficient classification. Many local authorities do not need such large colonies, and for these combination with other authorities is recommended. It is interesting to find in the annual report of the Board of Control 11 authorities have already acquired estates for establishing mental deficiency colonies, and at least six others are contemplating joint boards for this purpose.

As regards area, the committee recommend that at least one acre is needed for every ten patients, if adequate accommodation is to be provided with a satisfactory lay out and sufficient ground is set apart for outdoor occupations. Throughout the report the aim is to make the colony as self-supporting as possible, and to provide a great variety of interests, and to this end suggestions are made dealing with administrative offices, workshops, school, recreation hall, market gardens, greenhouses, poultry, dairy, and many other features of a well-ordered community.

Considerable attention is given to the planning of the individual homes, the air space, the number and arrangement of beds, the baths and lavatories. Accompanying the report are several suggested plans of the homes which form the units of the colony. It is significant that the new committee have not been able to make suggestions to lessen the cost of buildings to any material extent from the plans previously recommended by the Board of Control. With reference to alternative methods of construction, the committee find that there is a saving of from £25 to £50 per bed in capital cost by the erection of temporary buildings, and that the time taken during construction would be materially reduced. On the other hand, the annual charges would be greater, and the committee concluded "there is little likelihood in general economy resulting from the adoption of semi-permanent or temporary methods of construction, except in the case of workshops, farm buildings, and similar structures."

SOME PROVISION MUST BE MADE.

The general principles which should guide authorities in giving effect to the provisions of the Mental Deficiency Acts are now clearly stated, and there can be little doubt that the findings of the committee will be generally accepted as conclusive. No doubt smaller units would be preferable, and decentralised cooking more home-like; and it would be desirable to spread out the colony more like a village were it not for limitations arising from the expense of roads and water mains. These are, however, minor details. The scheme proposed provides a colony with a satisfactory classification of patients, and it is vastly preferable to barrack-like buildings with great dormitories and long corridors, giving little or no opportunity for home-like conditions.

The committee refer to "the grave danger that the further successful carrying out of the provisions of the Mental Deficiency Act, 1913, may be impeded, if not altogether prevented, by the refusal of local authorities to face the cost unavoidably involved is in our view clearly shown by the small progress made since the war in the provision of colonies." The report is dated March 26th, 1931, and since then the financial position has become more serious, and the question arises in which way does true economy lie? The main facts are now well understood. We know from the fourteenth report of the Board of Control (p. 43) that at least one person in every 1000 of the general population needs institution care and training, this apart from those who are placed under statutory supervision and guardianship.

In the last (seventeenth) report of the Board of Control we learn that in no part of the country is sufficient provision made for defectives needing care in institutions. Twenty-two local authorities have made no provision whatever and 44 have only provided for less than 0·25 per 1000 population. The result is that there is a constant demand for places in certified institutions or in colonies elsewhere. Generally speaking, it is impossible to find room for high-grade cases with violent or immoral tendencies, or for the low grade needing nursing care. As a consequence mental defectives either drift about in the streets, or are placed in poor-law institutions, most of which are altogether unsuitable, or are sent to the mental hospitals.

The last-named procedure is wasteful, and yet in all our mental hospitals are found large numbers of defectives who but rarely can receive proper training and so tend to deteriorate. Authorities would save much if defectives were at an early age removed to a colony and prevented from becoming the greater charge to society that residence in a mental hospital involves.

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[1] Colonies for Mental Defectives. H.M. Stationery Office. 1931. 2s.

Another fact is well established. Almost all defectives improve greatly with proper training. They become happier, healthier, and many learn to contribute to their support. It is true that very few recover, though some are able to have leave of absence on licence. In some districts there are hostels for selected high-grade girls, who undertake daily domestic service, and do well under these guarded conditions. Nevertheless, broadly speaking, mental defect is permanent, and consequently in some way or other feeble-minded persons must be provided for.

POSSIBLE ALTERNATIVES.

The question is whether it is more economical to ignore the problem (we have heard of a chairman of a county council who boasted there were no defectives in his county) and so allow the feeble-minded to be a burden to parents and relatives, or become criminals, or swell the numbers of the unemployed.

The placing of defectives under guardianship in a private house tends to lessen the capital expenditure required in establishing a colony. In the last report of the Board of Control it is stated that 1357 defectives were so placed. Many of these were living with relatives, and the local authority contributed to their maintenance. This is very successful in certain cases; the defective may be very happy under home conditions. Yet it is doubtful whether in this country it can be largely extended. It is noteworthy that in certain countries, where the boarding out of patients is still largely practised, it was started at a time of economic stress when housewives were glad to receive a resident patient who brought a welcome addition to the family income. But in the industrial areas of the British Isles conditions are much less favourable, and it must not be forgotten that a defective in a private home rarely has opportunity for the training and regular occupation that obtains in a colony. There is less chance of improvement, and much greater risk of misconduct in many directions.

The magnitude of the problem is greater than the public realises. The Board of Control estimates that institution accommodation is needed for at least 18,500 more defectives, and even if all the schemes already under consideration are carried out the problem will not be solved. The matter has three aspects: the economic, the eugenic, and the humanitarian.

As regards the first, we believe it will be true economy to increase the number of colonies for defectives. The wastage of effort in supervising defectives is immeasurable, for every defective at large takes up valuable time of someone, even if there be no criminal tendencies and no direct cost to ratepayers. It is impossible to work out the relative cost to the community generally of colony life and the alternative haphazard method of drift, which means untold expenditure of time and effort by giving freedom and licence to the incompetent and unfit. The defectives are a terrible expense whatever be done, but there is good reason to believe that early segregation is really the least costly method of meeting the problem.

From a eugenic point of view there is little to be said. Colony life gives increased health and greater possibilities of usefulness without the danger of burdening posterity with an increasing number of defectives.

The humanitarian point of view may count for less in these difficult times. Anyone familiar with life in a colony knows how happy it may be. The visitor will find a contented population; he will be greeted with cheerful faces, and be eagerly shown samples of work, and given exhibitions of occupations, games, and amusements. He will have no doubt regarding the benefits of colony life. Much could be written of the varied activities, the busy workshops, the gardening, singing, dancing, in which the higher grade patients become remarkably proficient. It is remarkable how occupation is found for almost all, and how even the low grade improve in conduct and habits. In the villas containing the helpless patients the visitor is heartened to see the devotion of the nursing staff, and though he may wonder why such patients are permitted to live, the care and attention given to them awakes a feeling of gratitude that society ministers even to these.

A STRONG CASE.

There is therefore a strong case even at the present time to proceed with the establishment of colonies. Without entering on debatable ground, it would seem that this is the sort of work that the unemployed men in the building and allied trades might wisely be given.

In this connexion the following words of John Conolly are appropriate, although written[2] long ago:—

> "None but those who live among the insane can fully know the pleasures which arise from imparting trifling satisfactions to impaired minds. . . . None else can fully know the value of diffusing comfort, and all the blessings of orderly life, amongst those who would perish without care, or each of whom would, if out of the asylum, be tormented or a tormentor." And speaking of his patients he says they are "his friends; humble, but not without even delicate consideration for others; wayward, but not malignant except when cruelty exasperates them; capricious, but not ungrateful; distrustful, but to be won by candour and truth; disturbed and grievously afflicted, but not dead to some of the best and purest affections."

Though written chiefly of the insane, these remarks apply equally to mental deficiency.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED DEC. 5TH, 1931.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 57 (last week 56); scarlet fever, 1708; diphtheria, 1083; enteric fever, 35; pneumonia, 1181; puerperal fever, 35; puerperal pyrexia, 105; cerebro-spinal fever, 33; acute poliomyelitis, 7; encephalitis lethargica, 12; continued fever, 1; dysentery, 18; ophthalmia neonatorum, 91. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Dec. 8th–9th was as follows: Small-pox, 112 under treatment, 3 under observation (last week 112 and 13 respectively); scarlet fever, 1585; diphtheria, 1568; enteric fever, 12; measles, 406; whooping-cough, 435; puerperal fever, 18 (plus 14 babies); encephalitis lethargica, 223; poliomyelitis, 4; "other diseases," 195. At St. Margaret's Hospital there were 11 babies (plus 5 mothers) with ophthalmia neonatorum.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 6 (1) from enteric fever, 39 (6) from measles, 3 (1) from scarlet fever, 29 (5) from whooping-cough, 39 (7) from diphtheria, 60 (18) from diarrhœa and enteritis under two years, and 90 (10) from influenza. The figures in parentheses are those for London itself.

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[2] The Construction and Government of Lunatic Asylums. London, 1847.

The fatal cases of enteric fever outside London occurred at Birmingham, Halifax, Rotherham, and Hull. Eleven deaths from measles were reported from Stoke-on-Trent, 7 from Manchester, 5 from Carlisle. Liverpool reported 8 deaths from whooping-cough, Birmingham and Manchester each 3. Diphtheria claimed 4 victims at Manchester, 3 each at Liverpool and Hull. Diarrhœa was credited with 5 deaths at Liverpool, 4 each at Stoke-on-Trent, Birmingham, Nottingham, and Manchester. The fatal cases of influenza are reported from 41 great towns, the higher numbers being in Liverpool 6, Manchester 5, Stoke-on-Trent and Newcastle-on-Tyne each 4.

The number of stillbirths notified during the week was 268 (corresponding to a rate of 45 per 1000 births), including 58 in London.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are 1930 statistics of three counties.

Name of district and estimated (R.-G.) mid-year population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Respiratory diseases with influenza.	Heart disease.	Infant and neonatal mortality.	Young child (1–5 yr.) mortality.	Maternal mortality in childbirth.
orkshire, West Riding (1,534,050)	16·9	11·4	0·77	1·33	1·5	2·2	65/	28	6·2
ancashire .. (1,806,960)	14·0	11·9	0·72	1·42	1·6	2·3	64/	28	6·2
omerset .. (404,870)	14·3	11·7	0·62	1·61	1·2	2·4	46/29	12	4·3

Registered stillbirths per 100 live births: West Riding, 4·9; ancashire, 5·4; Somerset, 4·7.

West Riding of Yorkshire.

Dr. T. N. V. Potts says the infant mortality-rate still capable of further reduction. Of the 1680 nfant deaths, 882 were due to congenital conditions, c., and in connexion with these deaths, he refers o the definite and suspected cases of attempted bortion as a cause of constant concern. It may be ssumed also that a proportion of the 1222 stillbirths egistered were also due to illegal interference. The naternal mortality from childbirth is distinctly igher in the West Riding than in the country enerally. The rates for the three years preceding 930 were 5·18, 5·45, and 5·24.

The subject of hospital accommodation is receiving ttention from at least four standing committees of he county council, and as the interdependence of he different types of institution becomes increasingly pparent, each of these committees will need to have onstant regard for the activities of the others, if he best interests of the county are to be served. There are 38 isolation hospitals and 30 small-pox hospitals, some of them controlled by joint hospital boards and committees and 28 by separate district councils. The beds vary from a minimum of five to a maximum of 97, and one small hospital may be full to overflowing whilst another in the neighbourhood is almost empty. The scheme of the county councils divides the 1½ million acres of the county into ten areas for general infectious diseases and into nine fof small-pox, with a free interchange of beds among the hospitals as necessity arises. When the areas have been grouped there will be a surplus of beds in some cases and a need for building extensions in others. The county council will make a grant of 50 per cent. of capital expenditure needed for extensions. There are 22 public assistance institutions and one separate hospital at Keighley which have been transferred. Major operative surgery is carried out at Otley, Batley, and Wakefield institutions and at Keighley hospital, these being the only four provided with operating theatres. Patients needing an operation are transferred to one of these or to a voluntary hospital. Batley institution is the only one with an X ray plant. The 22 institutions have 78 maternity beds but only about 350 women were admitted for confinement during the year. The county council is giving special attention to the maternity hospital requirements of the south Yorkshire area. Dr. Potts lays emphasis on the increasing demand for maternity beds and the urgent need for coming to an agreement with the general hospitals in the county boroughs, seeing that the maternity services provided by such hospitals for abnormal cases could only be replaced by the county council at a prohibitive cost. There are still some districts inadequately supplied with midwives, and during the year the areas served by district nursing associations have been rearranged and increased grants for motor transport have been allowed. Dr. Potts makes the useful suggestion that practising midwives should be sent to maternity homes run by the county council for practical refresher courses, lasting for a month or longer. The midwives attended 14,282 births as midwives and 2785 as maternity nurses, equivalent to over 65 per cent. of the total births.

There were 148 cases of enteric fever with 28 deaths. At Honley, where a considerable epidemic occurred last year, an outbreak of 11 cases was attributed to a "carrier," who has now taken up another occupation. Cerebro-spinal fever has lately increased in prevalence. In the three years, 1926–28, the notifications were 8, 9, and 8. In 1929 they rose to 20 and in 1930 to 115. In 1931 the disease has assumed epidemic form in areas chiefly around the original focus at Thorne. The notifications up to the end of June, 1931, numbered 420. The case-fatality is about 50 per cent. and in many cases death has occurred within 24 hours. The number of new cases at the large venereal department centres varies little from year to year, but at such centres as Keighley and Goole, where the population is stationary and non-fluctuating in character, there is a considerable diminution and Dr. Potts infers that the post-war prevalence has been overcome in these areas and that the clinics now provide modern treatment for a normal incidence of infection.

Dr. Potts refers to a Ministry report of 1928 comparing the tuberculosis schemes of Lancashire and the West Riding. Among other things it was indicated that in Lancashire more new cases were examined, more consultations were held, and more home visits paid; also more residential treatment for non-pulmonary cases and more provision for the segregation of advanced pulmonary cases are made in Lancashire. Furthermore, the facilities for arriving at an accurate diagnosis were better in Lancashire. Dr. Potts agrees with these conclusions and submits recommendations for the improvement of the West Riding scheme, under which the 11 dispensary areas will be reduced to five, with a consultant officer for each; each dispensary will be equipped with X ray and ultra-violet ray facilities and the clerical staff will be increased; new dispensaries will be provided in certain districts and better premises in others; the hospital accommodation for advanced cases at Crookhill Hall will be increased.

Lancashire.

Dr. J. J. Butterworth's report consists mainly of tabulated details with respect to the 19 municipal boroughs, 81 urban districts, and 19 rural districts which make up the administrative county. About *one-seventh* of the population is in the rural districts. The county health department has been much occupied during the year with work incident to operating the transferred public health functions and with the preparation of reports to assist in the rearrangement of the county districts. The poor-law institutions transferred numbered 14 with 1758 beds for men, 1937 for women, and 299 for children. The county council pays in subscription to voluntary hospitals about £3500 per annum and about £2000 to nursing and other associations. The transferred institutions admitted 1083 cases for confinement during the last nine months of 1930, and the county council sent 175 maternity cases into 25 hospitals in various parts of the county. The payment for the latter amounted to £1433, of which £578 was recovered from the patients.

The percentage of infectious cases removed to hospital throughout the county was for scarlet fever 54·7, for diphtheria 66·7, and for enteric fever 66·3. Cases of enteric fever numbered 95, with 16 deaths, and 73 of the county districts were entirely free from this disease in 1930. Diphtheria continues to show the progressive increase noticeable in recent years. There were 1872 cases with 124 deaths—a case-fatality of 6·6 per cent., as against 7·4 in the preceding year. During the last ten years there were 1094 notified cases of encephalitis lethargica with 660 deaths, and 181 notified cases of acute poliomyelitis with 47 deaths. The notified cases of cerebro-spinal fever in 1930 were 12 and the deaths registered from this cause 16. An outbreak of epidemic catarrhal jaundice affected the scholars of three schools in the townships of Woodplumpton, Catforth, and Lea, and one adult. The schools were separated by a mile or more from one another and had little intercommunication. Three other schools in the townships were not affected. In the first school there were eight cases, seven of which were supplied by two families; in the second school there were eight cases, five supplied by two families; and in the third school there were nine cases, six of whom came from three families. In most cases there was a history of lassitude preceding the actual onset, and the most prominent symptom was intractable vomiting. Some had pain in the gall-bladder area and the patient was usually more comfortable after the jaundice appeared on the second or third day. A virulent outbreak of diphtheria occurred among the children of Hart Common School, Westhoughton. This is a mixed school of 192 children, 27 being under the age of 5. After the first two cases the school was closed from June 16th to 27th, but in July four fresh cases were notified. Altogether there were 15 cases, of which eight ended fatally. Massive doses of antitoxin were not used. As the result of the epidemic 51 per cent. of the other children were immunised with the consent of the parents.

For the purposes of milk legislation the county council employs, as required, 30 veterinary surgeons resident in all parts of the area. Of 773 samples of milk submitted by 45 of the local authorities, 79 were found to be tuberculous. There are 7600 dairy farms, and the cow population is about 81,000. Designated milk has not made much headway as there are only five licences for Certified milk issued by the Ministry, 45 licences for Grade A milk issued by the county council, and seven licences for pasteurising plants. Of 2949 samples of milk examined for adulteration, 3·4 per cent. were returned as adulterated. The list of the fines imposed for adulteration of milk indicate that the magistrates regard this offence leniently. Thus the maximum fine appears to be £5. This maximum was imposed in respect of a milk 18 per cent. deficient in fat and 22 per cent. in solids not fat, whilst a deficiency of 23 per cent. in fat and 20 per cent. in solids not fat only earned a fine of £2. Milk adulteration in Lancashire should be a profitable occupation. Public abattoirs have been provided at seven of the boroughs and four of the urban districts. In about 56 districts a shortage of houses at reasonable rents is reported, and in about 30 districts some action has been taken or is contemplated to deal with unhealthy areas.

Somerset.

Dr. W. G. Savage refers to the large proportion of old persons in the population. Thus 55·5 per cent. of the deaths were at ages over 65, and the death-rate from all causes, when standardised, becomes 9·3. The effects of the Local Government Act, 1929, are gradually making themselves apparent in public health work, but no extensive changes occurred during the year as regards the treatment and provision for treatment of the sick-poor. Several of the old poor-law institutions have been given up and on April 1st, 1931, there were 12 in use. Most of this accommodation is suitable for the infirm and chronic cases which occupy nearly all the beds, but the accommodation for the few acute cases is inadequate in all but two or three infirmaries. The new infirmary at Chard was opened in May, 1931, and provides 50 beds on modern lines. The county is well supplied with voluntary general hospitals. No consultations with the voluntary hospitals have been held as yet and Dr. Savage recommends an early inquiry as to the institutional needs of the county as a whole, and to the relief of areas with waiting-lists. Such an inquiry should precede piecemeal additions to institutional accommodation. The conditions under which medical out-relief is granted and the factors governing admission to hospital would form part of such an inquiry. Two of the institutions have been appropriated for mental deficiency and two have been closed except for casuals. Steps are also being taken to group beds for tuberculosis and maternity, and to improve the conditions for children maintained under the poor-law.

A detailed review of the water-supply of every parish in the county is contained in the present report and will be valuable when a comprehensive survey of water-supply problems is considered. Dr. Savage thinks it would have been more economical and satisfactory if the control over infectious disease had been transferred to the county council, which is now a partner in isolation hospitals, provides laboratory facilities for diagnosis, and is also concerned with infectious disease as education authority and as maternity and child welfare authority for most of the county. Compared with 25 years ago, the fatality of pulmonary tuberculosis has declined 40 per cent. and of non-pulmonary tuberculosis 59 per cent. The provision of additional accommodation for non-pulmonary and for advanced pulmonary tuberculosis is under consideration. Artificial pneumothorax treatment in the county has been begun by sending patients to Quantock Sanatorium for the primary induction and to the nearest tuberculosis dispensary for refills. Up to now patients have only been treated by this method when ordinary treatment had failed or was not likely to be successful. Of the first 17 cases, the results are very encouraging in 15.

The health visitors in their new capacity as infant life protection visitors have supervised 258 boarded-out children. The number of foster-mothers who take in one child is 128; 18 take two children; six take three; three take four; and four take more than four. The last group includes homes authorised at Taunton for 35 children, at Bridgwater for ten, at Portishead for eight, and at Easton-in-Gordano for five. One foster-mother has had to be removed from the list and several applications to act have had to be refused.

Sampling of 344 mixed milks revealed eight tubercle-infected, and outside authorities sent five complaints. One sample in each group came from the same farm, leaving 12 cases for investigation. One milk was from a creamery receiving milk from many sources and the infection could not be traced. In 10 out of 11 cases the infecting animal was destroyed, and in the eleventh case a very suspicious animal had been sold. No trouble has been caused by the effluents from the many milk depôts in the county during the year.

EAST HAM ISOLATION HOSPITAL.—Mr. Arthur Greenwood, the late Minister of Health, recently opened an administrative block and other extensions at this hospital. The enlargements include two new blocks, one of which provides 14 separate bed wards and a theatre, and the other a 10 and a 14 bed ward and two special case wards. The cost has exceeded £40,000.

SPECIAL ARTICLES

WINTERING IN ENGLAND.

A MEDICAL STATEMENT.

IN response to the influentially signed invitation *which appeared in our columns last week* (p. 1263), an open meeting of members of the medical profession was held on Dec. 9th at the Institute of Hygiene. The chair was taken by Dr. W. G. Willoughby, President of the British Medical Association. Letters of goodwill and apologies for absence were read from Sir Thomas Oliver, Sir George Newman, Sir Robert Philip, Dr. J. M. Nichol, and the Bath *division of the* British Medical Association.

The Chairman said that economic conditions had suddenly focused attention on British health resorts, which had not in the past had the credit they deserved. In many ways their advantages had not been fully realised, and people had been sent abroad when they would have been much better at home. On the other hand, the advantages of foreign resorts had been over-estimated. The range of the means of temperature met in Nice was about twice that of British south coast resorts; the *average daily sunshine* in Nice was 3·99 hours; on the south coast of England it was 2·5 hours. The rainfall of Nice approximated to that of England. The differences did not justify long journeys and inconvenience. The desert also had been overrated; in Dr. Willoughby's war experience the night temperature had fallen in the Libyan desert 60° F. from the day temperature, and there had been coughs all over the camp. It was important not to exaggerate. The British climate was curious and changeable, but it had suited the British for many generations and enabled them to stand almost any climate. There would, however, always be a certain number of people to whom foreign travel would be of value. No special town or locality should be signalled out for mention, but districts should be taken as a class. The question of spas was not before this meeting. *It was essential to have amenities—good music and* entertainment—and local authorities wanted waking up in this respect. He read a letter from a south coast resort showing that open-air tennis had been played there on two days out of three throughout the winter. If a statement could be put out, he concluded, a great thing would have been done for England and for the health of the people of England.

THE PROPOSED STATEMENT.

Dr. R. Fortescue Fox explained *that the statement* was the outcome of a *series of meetings of* medical men and others interested; it had been drawn up by the medical members, and had had very careful examination, but was open to criticism by the meeting.

The statement declared that there was a profusion of places suitable for winter visitors, although many of them were not yet adequately equipped. Only the seaside for winter seasons would be considered. Many southern and western resorts had equable sheltered climates, unaffected by Polar currents and protected *from easterly winds*. The British islands enjoyed a climate 20° F. warmer than was proper to their latitude, owing to the Gulf Stream.

The average temperature from November to March was 24° F. in the Alps, 45° F. in south-west England, 40° F. at Nice, and 67° F. at Assouan. The daily range of temperature was 10° F. in the Alps, 18° F. at Nice, 28° F. at Assouan, and 8–10° F. in the *west of* England. English nights were warmer than Riviera nights, owing to protecting clouds. The humid British resorts were very favourable to health in many cases. The western coast was stormy, but fog and mist were uncommon. The Channel Islands had slightly higher air and sea temperatures, and more sunshine. The south was 2° cooler than the south-west but sunnier. The air became more bracing towards the east, and the blending of sedative western with tonic eastern air gave the south-east coast a special quality, well suited for *rather robust people, especially children*. The daily winter sunshine record for the south averaged 2¼–2¾ hours.

The seaside was one of the surest means of mental and physical refreshment. Health disturbances which often preceded disease in middle life might be allayed by marine climate, with diet, baths, and rest. The sedative influence of the south-west made the breathing easier, and allayed *respiratory catarrh, encouraged the action of the skin,* diminished tissue changes, and reduced the tension of the circulation and nervous system. The stimulant effect of the south east increased the cooling of the body and the activity of the heart and excretory organs, made larger demands on digestion and tissue change, and increased *nervous activity*. This was *especially beneficial after* catarrhs and influenza, and in convalescence. Although many places had provided the social amenities necessary, there was still much to be learned from continental resorts. Pleasant employment and distraction were necessary to the pursuit of health. It was also desirable that the cost of accommodation be reduced.

Dr. Fox added that the figures in the statement had been taken from a trustworthy source, and had recently been confirmed by Dr. Edgar Hawkins, author of "Medical Climatology of England and Wales," London, 1923. British health resorts had never yet had "a loud speaker"; what was needed was a discriminate appreciation, not indiscriminate praise. The British spas were the most tonic spas of the world, but it would be better not to complicate the present effort by attempting an appreciation of the winter service of these spas.

Colonel R. H. Elliot described the origin and *development of the movement. The attitude of the* medical profession, he said, was different from that of the rest of the population, and the medical side of the question must be first considered, but the profession would have in time to face such matters as amenities and cost. The advantages of British health resorts were: good sanitation; excellent food—plain and familiar; beautiful country, full of interest; mild climate and plenty of winter sunshine; the care of doctors of our own race—"the best doctors in the world"; and the saving of a *long and exhausting journey. Patients* demanded a greater standard of comfort than most hotels had given in the past—warmed rooms, baths, hot and cold water in the bedroom, varied menus, and reasonable rates—and insisted on freedom to do what they wanted. They would not go to places if they could not get these things, or if they were to be told how to spend their Sunday evenings. The movement must not cause a rise in hotel rates, and must secure the coöperation of all the interests involved. It would bring great benefit to all kinds of trade. The *present offered* an opportunity that might not recur in a generation, and the first year must be a great success. The other interests looked to the medical profession to give the movement a start.

DISCUSSION OF THE STATEMENT.

Mr. J. W. Dulanty (High Commissioner of the Irish Free State), the only layman present, asked for the inclusion of a statement relating to winter resorts in Ireland, where the pound was still worth 20 shillings.

Sir William Willcox suggested the addition of a *paragraph for the man in the street, somewhat* to this effect: "It is the considered opinion of the

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

COMPULSORY PASTEURISATION.

EDINBURGH and Glasgow corporations are in conference on the obtaining of statutory powers to require that all milk produced for human consumption, unless certified or tuberculin-tested, should be pasteurised before distribution. In a joint report by Dr. John Guy, medical officer of health for Edinburgh, Mr. Gofton, chief veterinary inspector, and Mr. Allan Ritchie, chief sanitary inspector, state that a "small pasteurisation plant is not an economic proposition," but that "one of the large companies has expressed willingness to pasteurise milk at the rate of 1*d.* per gallon, and to return it in bulk, or alternatively to pasteurise milk and bottle it at the rate of 3*d.* per gallon, and would be prepared to give this scheme a trial for 12 months." They add: "We are of opinion, however, that compulsory pasteurisation would result sooner or later in the whole of the milk trade passing into the control of a very small number of large firms." They are agreed that the goal to strive for is the increased production of Certified and Grade A (T.T.) milk, and that this should be encouraged. It is suggested that there should be a conference on the subject by all the Scottish counties and cities associations. There is no suggestion that the municipalities themselves should bulk and pasteurise milk for all grades of producer, big or little.

THE PUNISHMENT OF THE CRIMINAL.

In an address on "Criminal Punishments, Past and Present," Sheriff Boyd Berry, commenting on Sir Robert Wallace's statement that 90 per cent. of offenders who had been put on probation by him had never come before the courts again, said: "So far as my own experience goes, and also the experience of other sheriffs in Glasgow, this estimate of Sir Robert Wallace's is an exceedingly optimistic one, as, in our courts, we see daily offenders in whose cases all the methods of admonition, probation, and reformatory treatment have all been tried in vain." These methods, he said, had no effect whatever in staying a persistent criminal career, but there was every reason to believe that in many cases the best of results had followed. On capital punishment, he maintained that the right of punishment of the individual being once conceded, the sole question came to be whether the death penalty was necessary in the interests of society. This was the consideration which had always actuated the State in relinquishing its powers against the individual, and it was the only one which should decide whether the death penalty was to be retained or abolished in this country.

A SAMARITAN SOCIETY.

The "voluntary system" has many supplementary mechanisms to enable the poorer classes to make use of the hospitals. In Edinburgh, the Samaritan Society, which has worked with the Royal Infirmary, the City Hospital, and the Deaconess Hospital for 52 years, has "taken care" of families where the mother or other cardinal member has to go to hospital or is otherwise brought to poverty by illness. Even a small regular allowance may keep a family above the official poverty line. The society may pay or subsidise the rent, or the fare home from hospital, or the charge for a period of convalescence. Such societies came into existence in the days when the acceptance of "public assistance" was a disgrace, and they survive long after the motive for their creation has largely lost its leverage, since sickness is now itself a ground for public treatment, and does not need the make-weight of destitution.

QUARRIERS' HOMES.

"Quarriers' Homes" is as well known in Scotland as the Clyde itself near which it stands. At the beginning of the latest year there were 1470 inmates, of whom 1206 were children, 173 consumptives, and 91 epileptics. During the year 148 children, 205 consumptives, and 31 epileptics were received. The income was £87,184. Between 1871, when the first home was opened and the present day, 19,614 children have passed through. Approximately £2,216,768 has been received, £373,062 being spent in building, and £1,796,103 on maintenance of homes, sanatoriums and colony, and home and foreign missions. This is a wonderful record for 60 years of individual philanthropy.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENT.)

RETRENCHMENT.

REPORTS of various subcommittees appointed by the Government of India contain recommendations of a sweeping character, which will not be pleasant reading for the departments and individuals affected. The general purposes subcommittee, of which Sir Abdur Rahim was chairman, proposes a general percentage cut in the pay of all Government officers, and a withdrawal of the Lee concessions, except in so far as they concern salaries. This would prejudice passage allowances and overseas pay, two of the most valued of the recently acquired privileges of the I.M.S. It is also proposed to increase the rents of Government-owned bungalows, and to inquire into special pay, travelling allowances, and other categories of payments. At present pensions, leave, and *deputation* salaries and allowances, paid outside India, are exempt from Indian income-tax. The suggestion is now made that this exemption should be withdrawn. The Director-General, I.M.S., is the object of special attack. The post is said to be a survival of the pre-reform régime, and the committee advise that it should be abolished. It is also proposed to reduce the public health grant by nearly one-half, to 7 lakhs of rupees. A saving clause in this ruthless document is the reference to the scientific services conducted by the Government of India, the importance of maintaining which is admitted.

A CHRISTIAN MEDICAL COLLEGE.

An ambitious scheme is under consideration by the Christian Medical Association of India for the foundation of a medical college. Already certain missions support training schools in association with some of their hospitals, but these have hitherto only dealt with students of the subordinate class. The idea now is to go a step further, and train for the full degree standard, in a central institution based on a large new hospital and self-contained in every way. The title Union Christian Medical College has been suggested, from which it may be inferred that the intention is to unite as many of the missionary bodies as possible in the movement. Allahabad has been proposed as a suitable centre. It is recognised that the missions unaided would be unable to finance a scheme of this magnitude, but there is said to be a possibility of a large sum being provided by a group in America which is interested in the project.

THE INDEPENDENT PRACTITIONER.

Meanwhile there are many signs that medicine like other professions in India is, for the time being at any rate, overcrowded as regards existing opportunities for remunerative practice. Last year a committee which had been appointed to consider medical education in the Presidency of Madras presented its report. The committee found that there was evidence of increasing difficulty in earning a reasonable livelihood, especially amongst junior members of the profession, and that even in some comparatively wealthy areas, where opportunities for lucrative practice existed, many medical men were leading a hand-to-mouth existence. There are said to be good reasons for believing that the economic prospects of medicine are rapidly deteriorating, and that the struggle for existence is tending to lower both status and ethical standards, and to affect adversely the quality of applicants for admission to the medical schools. Attempts to induce medical men to settle in rural areas have been discouraging. Absence of social amenities and educational facilities for children are important factors, apart from the lack of financial inducements, and the *vaids* and *hakims* are likely to maintain their monopoly in villages unless some humbler and less expensive agency than the regular medical profession can be found to compete with them. The position is, of course, paradoxical. It is well known that, judged by western standards, the proportion of properly qualified doctors is quite inadequate, but the fact remains that in the present state of society there are more available at the moment than can be usefully employed. The committee concludes that instead of turning out the largest possible number of medical men and women from the existing schools and colleges, the policy of government should be to educate only as many as are likely to be able to gain a reasonable livelihood.

"MAKAWLAM."

An entertaining example of the pitfalls which beset practitioners of the indigenous systems of medicine —and unsuspecting British officials, who are sometimes too ready to accept their diagnoses—is forthcoming in the report of the *Makawlam inquiry* committee. Some years ago a new disease was reported from various districts in Burma, its name signifying "the spot (or fruit) gets ripe," referring to an eruption of spots or pimples at the margin of, or just within, the anus. The eruption was said to be invariably associated with fever. So serious were the depredations of this affection that Lieut.-Colonel J. Morison, an officer of the research department, was deputed by the Government of India to visit some of the areas affected and inquire into its origin. He took with him a full travelling laboratory, sufficient to undertake the examination of any febrile disease, with a skilled laboratory attendant, and it was only after prolonged travelling, and a thorough investigation of many cases, that he was able to produce convincing proof that the whole affair was a mare's-nest, the novel pestilence being only a manifestation of malaria, seen through the medium of indigenous medicine. The trouble originated from the Burman *vaids*, who for some unknown reason—perhaps owing to accidental anal irritation in one or two of the early cases—had taken to examining that region and, struck with the rugæ at the margin, proceeded to puncture or scarify them with thorns. To such an extent had this practice grown that the treatment of cases of fever of any kind, whether malaria or typhoid or small-pox, or even plague, was not considered complete without anal puncture.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

EPIDEMIC DISEASE IN FRANCE IN 1930.

THE student of epidemiology is bound to be more than a trifle confused, as far as France is concerned, by the variety of sources of information at his disposal. There are the annual reports of the departmental inspectors of hygiene, which do not always tally with the official statistics of the Ministry of Health; and there are also the monthly epidemiological reports of the Health Section of the League of Nations. After commenting on the embarrassment which this diversity of sometimes contradictory data has caused him, Dr. E. Lesné presented to the Academy of Medicine on Nov. 24th a very interesting survey of the epidemic diseases in France during 1930.

Acute anterior poliomyelitis, he said, was epidemic in the Department of the Bas-Rhin, where 405 typical cases were notified, an incidence of 60·5 per 100,000 inhabitants. The epidemic culminated in July with 220 cases, and there was a slight recrudescence at the beginning of September. As great a proportion as 84 per cent. of the patients were under the school age, and only 1 per cent. were over 21. The mortality at all ages was 10 per cent., and it rose with the age of the patient, reaching 20 per cent. among adolescents. The epidemic kept to the valleys and water courses, its progress being abruptly arrested at the foot of the Vosges. The synchronous meteorological conditions suggested that high temperatures favoured the epidemic. Although it was worst in the areas supplied with surface water, inquiries made in individual cases always failed to exclude the possibility of transmission of the virus by human contacts. In other words, no unquestionable case could be discovered of transmission of the disease by drinking water or by eatables. The total number of notifications in France was 1530, but there were doubtless many more cases than that.

Diphtheria.—In 1929 there were 20,400 cases of diphtheria notified in the whole of France. In 1930 this number had risen to 23,700. At Dijon the mortality from diphtheria per 100,000 inhabitants rose from 2·4 in 1929 to 13·1 in 1930. In the Bas-Rhin the notifications rose from 395 in 1929 to 885 in 1930; and the mortality was four times greater in this year than in 1929. But in Paris diphtheria is on the wane, and in its suburbs the disease is stationary. Lesné observed that diphtheria has almost doubled itself during these two years in Germany, and that its incidence in the first quarter of 1930 in Germany was approximately equivalent to its incidence in France for the whole of 1930. It would seem that vaccination against diphtheria has made definite progress, no department having failed to make great efforts to promote it, and the result is that the educated public is beginning to ask for it. But Lesné holds that it will never be really effective until it is made compulsory.

Typhoid and Paratyphoid Fevers.—The definite decline in the incidence of these fevers is correlated with the improvements in the water-supplies throughout France, and with the extension of specific vaccination against these diseases.

Measles, Scarlet Fever, and Cerebro-spinal Fever.—Although measles occurred more frequently in 1930 than in 1929, reports from all over the country indicated that it was very benign. Scarlet fever showed no change from 1929. It is curious that while there were only some 14,000 cases in France throughout the whole of 1930, there were as many as 35,000 notified in England in the first quarter only of this year. Cerebro-spinal fever seems to be on the wane in France, only 412 cases having been notified in 1930 as compared with 467 in 1929.

PHARMACEUTICAL PREPARATIONS FOR INMATES OF PRISONS.

The ingenuity of practitioners is often taxed beyond breaking-point by the samples of pharmaceutical products flung at them. Try them on the dog? Or let them accumulate in cupboards? The latter alternative certainly follows the lines of least resistance. Perhaps this is why the cupboard habit is so universal. But examined closely and critically, it seems a negative, defeatist, and cowardly reaction on the part of the recipients of these samples to the donors thereof. What seems to be a very sensible escape from this impasse has recently been devised by a philanthropic body of doctors who have grouped themselves under the title of "L'Oeuvre d'approvisionnement Médical des Prisons" (A.M.P.). This body, having noticed that prison dispensaries are often short of drugs, while private medical practitioners suffer from a surfeit of them, has devised a system for diverting this surfeit to the prisons. The owners of superfluous samples are requested to send them to a central depôt in the rue Cambacérès in Paris. To facilitate their classification and prescription, they are asked to label them according to the organs or diseases for which their makers intended them. Thus one lot of samples should be labelled "heart and circulation," another "respiratory apparatus," another "rheumatism, gout, diabetes," another "women," another "nerves and aches and pains," another "fevers and infections," another "tonics," and so on. From the humanitarian point of view this scheme seems excellent, and the names of its sponsors are in themselves a guarantee of its philanthropic motive. Whatever individual sceptics may think of the therapeutic value of the average proprietary pharmaceutical preparation, judged by strictly pharmacological standards, it is impossible to overrate the psychic value of "something in a bottle." The prisoner who in the past has been given no remedy for his aches and pains, must have often been tempted to think he was neglected simply because he was a prisoner and not because the prison medicine cupboard was bare.

UNITED STATES OF AMERICA.

(FROM AN OCCASIONAL CORRESPONDENT.)

SANITATION AND UNEMPLOYMENT.

A COMMITTEE of sanitary engineers representing the sanitary engineering divisions of State public health departments has drawn up a memorandum on the relation of unemployment relief to engineering projects. Investigation has shown that projects for the purification and protection of water-supplies and for the installation and operation of sewerage works are suffering as the result of the depression. The committee points out that such a result is creating a mortgage on the health of future generations. Relief committees handling funds subscribed voluntarily by the general public will wish to use these funds as far as possible to create employment rather than to support families in idleness. What better employment could be found than work which will improve the health and environment of future generations? The committee recommends that surveys be made in the several States of need for "the improvement of water-supplies and distributing systems, works for the collection and disposal of sewage, refuse, garbage, and other municipal wastes, malaria and mosquito control, rural sanitation, and reclamation of waste or wet lands for recreation and other useful purposes."

This memorandum has been adopted by the Conference of State Sanitary Engineers, by the engineering section of the American Public Health Association, and by the Association's governing council.

ENTERIC IN MONTREAL.

As an example of what may happen as a result of relaxing standards of sanitation I may quote a recent report[1] in the devastating epidemic of typhoid fever in Montreal in 1927. It was shown that milk, cream, and ice-cream were the common articles of food in the dietaries of the sick. The preponderance of cases was amongst the young. Cases were scarce or absent in areas not supplied by the Montreal Dairy Company and its associate the National Dairy Company. The milk supplied by these companies was pasteurised milk. The story of how this milk came to be responsible for the most extensive epidemic of typhoid fever recorded in modern times is a story of inadequate supervision and control of the pasteurising plant. The methodical procedure of the investigation and the graphic illustrations of the methods employed constitute a model text of thorough epidemiological research. The investigation is published with the approval of the Director of the Provincial Bureau of Health at Quebec.

SEWAGE IN THE GREAT LAKES.

A plea for more adequate control of sewage and wastes discharged into the Great Lakes is entered by a Cleveland engineer in the *Scientific Monthly*.[2] An important investigation was made in 1913-14 as a result of a treaty between Great Britain and the United States, the scope of the inquiry being to determine "to what extent and by what causes and in what localities have the boundary waters between the United States and Canada been polluted so as to be injurious to public health and unfit for domestic and other uses." This investigation confirmed the work of previous if less important studies that the lakes are dangerously polluted with sewage along shores opposite to large centres of population. Were it not for the irregular diffusion of wastes by surface and sub-surface currents, the natural processes of purification would have a better chance to protect water-supplies. Onshore winds have a tendency to drive surface currents shoreward, and the water returns as an undertow to the body of the lake. Ordinary measures of water purification are insufficient protection against such risks of heavy contamination. Adequate treatment of sewage and trade wastes is called for not only by the above consideration, but also that shore waters used for bathing may be protected from floating sewage solids and from oils and grease. Even the danger of contamination by passing vessels is not as negligible as it was once believed to be. The entry to the lakes of ships from foreign ports introduces danger of such infection as cholera unless the quarantine regulations and the rules prohibiting discharge of sewage are rigidly enforced.

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[1] Pease, H. D.: An investigation of Epidemic Typhoid Fever in Montreal in 1927. Pease Laboratories Inc., New York, 1931.

[2] Ellms, J. W.: Water Purification and Sewage Disposal in the Great Lakes. Scientific Monthly, November, 1931, p. 423.

POLIOMYELITIS AND SERUM.

The appeal, referred to in a former letter,[3] made by the New York State Department of Health for immune blood to be used in the treatment of poliomyelitis has met with remarkable success. Over 1100 persons responded and actually 1011 were bled between July 27th and Oct. 5th. Eighty-seven of these were bled twice and many others volunteered to be bled a second time. The department has now a large reserve list of donors and has been able fully to meet the emergency created by the recent epidemic.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

THE HOSPITALS SWEEPSTAKES.

THE Hospitals Trust has now passed to its bankers a sum of £1,124,703 for payment of prizes on the Manchester November Handicap. A sum of £739,754 is available for the hospitals. Of this one-third has been paid to the Minister for Local Government and Public Health for distribution to rate-supported institutions. The remainder—a little less than half a million—will be divided among 44 voluntary hospitals in such proportion as the Minister for Justice shall determine after he has received the advice of his committees of reference. Preparations for the next sweepstake—on the Grand National—are already well advanced. Forty-eight voluntary hospitals have been admitted as participants, the newcomers being the Rotunda Hospital, Mercer's Hospital, Cliftonville Convalescent Home, Cork, and St. Patrick's Incurable Hospital, Cork.

It is probable that a suggestion will soon be put forward in concrete form to provide that a certain proportion of the Hospital Fund accruing from future sweepstakes should be allocated to medical research. At present there is no public provision for medical research in Ireland, and attempts to obtain money from various sources have failed. It is pointed out that a small percentage of the Hospital Fund would provide amply for research for the next few years, and might even provide a capital, the income of which, when sweepstakes are no more, would give a subsidy to help research in the future. The Research Fund would presumably be under the control of the Minister for Local Government and Public Health, who should be assisted in its administration by a small council appointed for the purpose.

A NEW CHAIR IN UNIVERSITY COLLEGE, DUBLIN.

The Senate of the National University of Ireland has established a chair of biochemistry and pharmacology in University College, Dublin, and has appointed Dr. Edward J. Conway thereto. Dr. Conway has done important research work in the last few years, dealing mainly with the secretory functions of the kidney. He is a graduate in medicine, and a Doctor of Science, of the National University.

MEDICINE AND THE LAW.

"Osteopathic Physician and Surgeon."

SECTION 40 of the Medical Act makes anyone liable to a fine not exceeding £20 who wilfully and falsely pretends to be or takes or uses the name or title of a physician or surgeon or any name or description implying that he is registered under the Act, or that he is recognised by law as a physician or surgeon. If the magistrate at the Marylebone police-court is right, the section has no terrors for anyone who, in describing himself as physician or surgeon, prefixes the qualifying word "osteopathic." Prof. A. E. Shakesby, a bone-setter and osteopath, practising at Dorset-square, was summoned at that court on Dec. 9th for taking the description "osteopathic physician and surgeon." Mr. Bingley, the magistrate, held that this was not an offence against the section; the defendant had not described himself as a "physician or surgeon" but had merely amplified his profession of bone-setting. A case is to be stated for the opinion of a higher court.

The issue presumably is a question of fact—what would the Profesor's description be taken to mean by an ordinary person? Would it suggest to such a person that the Professor was a duly qualified and registered medical practitioner or would the Professor's description sufficiently make clear that no such claim was made? When the Bengali student writes after his name "failed B.A.," ordinary persons do not understand him to be describing himself as a Bachelor of Arts. It must be in some similarly restrictive sense that Mr. Bingley interprets Prof. Shakesby's description "osteopathic physician and surgeon." Some people may be surprised that a not duly qualified practitioner, who adopts the title "physician and surgeon" in any form or context, fails to realise that he may be creating the impression that he is duly qualified. If a description is ambiguous, it ought not to be used. The whole purpose of the Medical Act is to enable the public to distinguish persons who are duly qualified from persons who are not.

Court Martial Conviction for Dentists Act Offence.

It is odd to find an offence against the Dentists Act being punished by a court-martial. On Dec. 11th, a private in the Army Dental Corps, attached to No. 12 Company, R.A.M.C., was found guilty by a district court-martial at Woolwich of having practised dentistry without being registered in the Dentists Register, and of having converted to his own use a sum of money entrusted to him by another soldier for the purpose of obtaining artificial teeth. The accused was sentenced to 56 days' imprisonment with hard labour and dismissal from the Army with ignominy. A soldier, being also a citizen, is subject to the civil as well as to the military law. A court-martial can try and punish him for offences committed against the ordinary law in England, except for a few grave offences such as treason, murder, manslaughter, and rape.

ENLARGEMENT OF CHESTERFIELD HOSPITAL.—Last week the Duke of Devonshire opened a new ward of 31 beds and other additions to this institution which have cost £22,000. The ward is named after the late Mr. Thomas Murphy, of Chesterfield, who bequeathed £10,000 to the hospital. The buildings include ophthalmic, nose, throat, and ear departments, a theatre, and a laboratory.

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[3] THE LANCET, Sept. 5th, p. 550.

CORRESPONDENCE

MEASLES.

To the Editor of THE LANCET.

SIR,—As a medical officer of health I am naturally less interested in the theoretical question as to whether measles has now become a preventable disease by the use of convalescent or adult serum than in the practical application of this method for the mass control of the infection and its mortality. I would remark, however, that since ever we learned how measles propagates itself the disease has in theory been preventable. It has in fact been shown to be capable of some control in isolated rural areas by the simple method of notification and school closure.[1] Unfortunately, as we all know, and as Dr. Forbes has pointed out in your columns, school control has an almost negligible influence upon the volume of epidemics of measles in towns, although until I am absolutely convinced that even a slight retardation of the course of an epidemic has no influence on its virulence, I am not prepared to go as far as he does in abandonment of our present methods.

I am afraid the use of convalescent or adult serum is not going to carry us very much further. We are indebted to Dr. Percy Stocks[2] for his very valuable demonstration of the amount of work which would be entailed in an attempt to modify an epidemic by this means and for his estimate of the influence such measures would be likely to effect. The fact that he is forced back to a somewhat tentative advocacy of the deliberate exposure of children to infection followed by partial immunisation is sufficient evidence to us that even a theorist is conscious of the practical limitations of immunisation. Dr. Forbes in your last issue suggests that the health departments might immunise selected contacts of cases of whom they have obtained information through schools and creches and who constitute a very considerable proportion of all those infected during an epidemic. To handle them alone would require a great increase of professional staff, because it must be clearly understood that health departments have no staff to spare for extra work of this kind during a measles epidemic. Moreover, even if we did temporarily expand our departments to deal with these children, we know that in towns another huge body of children would be exposed to infection at random, and what we might do for contacts would have relatively little influence on the incidence or mortality of measles among them. I say nothing of the difficulty likely to be encountered in persuading parents to adopt a method which does not offer complete protection but merely modification; and I take it that complete immunisation is not advocated as desirable for the general body of the working-class population. As a method of dealing with measles in the mass I do not think that immunisation will be of practical value for a very long time.

It seems to me, therefore, that medical officers of health can do very little more at the present time than advocate the use of human serum in institutions within their area and take steps to see that the public are aware that such a method exists. The slow progress of the practice of immunisation against diphtheria and scarlet fever because of the prejudice of the public against all forms of treatment or prophylaxis which involve puncture of their skin is evidence that immunisation against measles, which is really in practice a much more difficult and complicated affair, holds out little immediate prospect of controlling epidemics of the disease, and not much of reducing its mortality. If it is to be at all successful it must be through the efforts of the family practitioner whose interest in the matter it is to be hoped your frequent references to the subject will arouse.

I am, Sir, yours faithfully,

RALPH M. F. PICKEN.

Public Health Department, City Hall, Cardiff,
Dec. 14th, 1931.

SURGICAL ASPECT OF BIRTH CONTROL.

To the Editor of THE LANCET.

SIR,—In view of the public interest in family limitation that has recently been awakened by prominent members of the Church and Bench, it may reasonably be considered part of our duty to restate certain relevant medical and surgical facts which appear to be overlooked by the laity, however obvious they may be to members of our profession and to gynæcologists in particular. To whatever extent we may sympathise with the general objects of Mr. Justice McCardie's observations, we have to recognise:

(1) That there is unfortunately available at the present time no contraceptive method that is at once absolutely reliable, fool-proof, and free from risk. I exclude abstinence and coitus interruptus as unphysiological and harmful.

(2) That, contrary to public opinion as frequently expressed, the artificial termination of pregnancy involves very considerable risk even under the best circumstances. What the laity is often pleased to consider a simple curettage may prove to be a very difficult and dangerous procedure.

(3) That the surgical sterilisation of women, whether mentally defective or otherwise, involves the inevitable risks of laparotomy.

At the further risk of labouring the obvious, I therefore contend that, quite apart from ethical considerations, reputable surgeons will continue to be prohibited by their *surgical* conscience from undertaking these latter procedures in the absence of pathological indications. Whether the Church and Bench approve or disapprove is immaterial. If an enlightened Bench proposes *to* dictate active measures to more compliant members of our profession the risks to life will be correspondingly increased. So far as pathological indications for sterilisation or the termination of pregnancy are concerned, it is well known that the law affords us no guide or assistance whatever. The whole onus is ours.

Sterilisation by means of X rays or radium is outside the scope of my present argument. These measures imply physiological impairment of an individual already presumably defective, rather than any risk to life. This aspect of the problem is essentially ethical, and concerns the relative interests of the individual and the community. For my own part I sincerely hope that there will become available in the near future procedures whereby pregnancy can be prevented or terminated without the slightest risk to life or physiological well-being. But in the meantime we must insist upon the surgical point of view.

I am, Sir, yours faithfully,

FRANK COOK.

Harley-street, W., Dec. 14th, 1931.

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[1] THE LANCET, 1921, i., 1349.

[2] Brit. Med. Jour., Nov. 28th, p. 977.

EPIDEMIC POLIOMYELITIS.

To the Editor of THE LANCET.

SIR,—This letter is prompted by the most interesting article by Mr. Scott Brown, and your instructive leader, taken in conjunction with experiences in Australia described to me by Dr. Jean Macnamara. The latter are so hopeful and so illuminating that I cannot refrain from a very brief reference to the matter (pending her full publication). For poliomyelitis can be the most cruel of all diseases and we in England must not be caught napping—leaving diagnosis until paralysis has occurred, and without convalescent serum in sealed ampoules ready in every town. It is clear, then :

(1) That early diagnosis—i.e., before paralysis—*is possible in an epidemic. It depends on the alertness* of parent and doctor to suspect the disease, and upon the doctor making the two vital investigations : (*a*) into the existence of any erector spinæ spasm ("spinal sign"); (*b*) of the C.S.F. by lumbar puncture and *immediate* cell count, &c.

(2) That convalescent serum, intrathecal and intravenous, given before paralysis prevents or minimises it. But there is no time to be lost; paralysis may commence in minutes or hours. The task of diagnosis and treatment by convalescent serum is as urgent as that of a "ruptured ectopic."

(3) That contacts can be protected.

As an instance of what can be done in an epidemic Dr. Macnamara told me that of the last twelve cases admitted to a children's hospital, ten were in the pre-paralytic stage. It is true that, *apart from* an epidemic, pre-paralytic diagnosis must remain a difficult achievement. But if doctors, whenever they are dealing with the early stages of a "pyrexia of uncertain origin," will remember the possibility, and watch for the "spinal sign," then promptly bring a pathologist, complete with a syringe, microscope, and serum, to the bedside, many a patient will be saved.

One other point in support of your recommendation as to early splintage. Ten years ago I said that orthopædic treatment could do more in the first two days of the paralysis than in the ensuing two years. This indeed holds good, and we should put the muscles at rest by complete, comfortable, and undisturbed covering and splintage of the whole body, and so enable the sick and aching cells to sleep undisturbed by telephone calls from cortex and skin. Undoubtedly this enables many a poisoned cell to recover. But prevention is far better.

I am, Sir, yours faithfully,
G. R. GIRDLESTONE.

Headington, Oxford, Dec. 14th, 1931.

COMPILATION OF HUMAN PEDIGREES.

To the Editor of THE LANCET.

SIR,—I have followed the correspondence on this subject and warmly support Mr. C. J. Bond's suggestion to initiate a section for the study of human hereditary diseases at the Royal Society of Medicine. Surely this would be the best centre for stimulating interest in a subject which is greatly neglected by our medical profession. How great is the lack of reliable pedigrees and data for study has been recently brought home to me in trying to trace the hereditary element in diabetes. At present insufficient information is available to enable us to give a rational answer to a diabetic who asks whether his child is likely to be diabetic; and such information will remain lacking until general medical interest is stimulated to study and record their patients' pedigrees.

I am sure that many Fellows of the Royal Society of Medicine would welcome the formation of a special section and would give it their warm support. The interest of practically every branch of medicine and surgery is involved in this subject.

I am, Sir, yours faithfully,
R. D. LAWRENCE.

Harley-street, W., Dec. 13th, 1931.

THE LATE SIR DAVID BRUCE.

To the Editor of THE LANCET.

SIR,—My first recollection of the late Sir David Bruce takes me back to the old infirmary of Edinburgh. Mr. Chiene, the junior surgeon, but even then thought the best surgical teacher, saying "I have some of the best students of the school in my wards," our eyes turned to J. Lockhart Gibson (first-class honours, and when he went back to Australia he discovered the cause of, and stopped, the optic neuritis of children that was becoming endemic) and the imposing Bruce. Bruce later found practice distasteful, married his chief's daughter (of an artistic family, her first cousin, General Sir Walter Bedford designed the badge of the R.A.M.C., and her sister designed that of the Order of Merit), joined the R.A.M.C., and brought the lady to the Students' Club Ball of 1884–85 in Edinburgh. I found them at Malta in 1886–89, when I was serving in H.M.S. *Alexandra* flagship in the Mediterranean, and on March 8th, 1886, noted in a diary Bruce's magnificent appearance at the fancy dress ball at the Palace (white tie-wig, waistcoat, stockings and shoes, with a pink satin coat and breeches). Next year he had isolated from his many fever cases at Valetta Hospital a micrococcus which seemed to be the cause of Malta fever, which was distinctly a trial to us. In those days we knew few "germs." I was very pleased another had been found by the army, and boasted of this in our mess. "But what good is that," they said, "it doesn't help you to cure us." Not that that really mattered to my immediate associates, for in three years we had no case of undulant fever in our mess of 25. The admiral got it and our messman, and our first senior surgeon got it, but after he had left us on promotion to the *Thunderer*. He has, alas! died, so I cannot find out how he became infected; we did not have porridge and milk at breakfast then, as became the practice later. Our naval instructor told me the fever was spread by the hospital, but of course I was not going to believe that, and had no idea the pyrexia on board us was different from that in the army, as it was. A. G. P. Gipps, surgeon in *Dreadnought*, and I each wrote papers for the Epidemiological Society, he proving the cause of fever was in the harbour water, and I in faulty ventilation. I suppose we had hardly one case of brucella infection in our minds. Gipps got a bacteriological equipment out of the then Medical Director-General, but, unable to fit it up anywhere for himself, had a nook found for him in Valetta Hospital by Bruce. This discovery by Bruce bore little fruit until Sir Almroth Wright showed how to use the micrococcus in diagnosis, along the lines of the Widal reaction. Cases of brucella infection could then be accurately separated from the others occurring, and in 1897 "Mediterranean fever" became an official diagnosis in the navy. Once these cases could be distinguished, prevention was above the horizon, and a commission was set to work with

Bruce, now a renowned investigator, at its head. A goat's blood was found to react; Bruce at once appreciated how important this was and urged further examinations. Others found the micrococcus in goat's milk; this was forbidden to be used, and Mediterranean fever cases, 270 in the navy on the station in 1905, dropped in 1907 to 14, and the army found it could spare six of its medical officers from Malta for India. The disease could not yet in fact be cured. What was far more important, and not at first even imagined, it could be and was prevented. As Lady Bruce pointed out to me later, without that prevention Malta could not have been used in the late war as a hospital base for cases from Gallipoli.

And so the harvest came at last, after 20 years. In 1887, the cause found; in 1897, its clinical use developed; thereby in 1907 the disease stopped. Rarely has a man to wait 20 years for the harvest of his sowing, and then himself reaped it. It was a great research as it proved, though Koch rather made little of it as concerned with only a small island; but how the endemic area is being extended from year to year, even into the Eastern Black Sea, whence it may have been introduced into Malta at the time of the Crimean War, as seems possible from Surgeon Captain Dudley's Croonian lectures this year (THE LANCET, 1931, i., 684). This history should encourage all junior officers who may in future be disappointed when they find that some knowledge they have toilsomely acquired fails to secure immediate recognition from the physicians of their time.

I am, Sir, yours faithfully,

W. E. HOME,
Fleet Surgeon.

Southborough, Dec. 5th, 1931.

TICK-BITE FEVER.

To the Editor of THE LANCET.

SIR,—Drs. Troup and Pijper in their paper on Tick-bite Fever in Southern Africa (Nov. 28th, p. 1183) note the occurrence of a relative lymphocytosis without increase in the total number of white cells. W. and L. Haberfelt (*Wien. klin. Woch.*, 1914, p. 149) have reported similar changes in tick-bite fever in Brazil. They noticed the enlargement and tenderness of the regional lymph glands. The blood count in an illustrative case was 7200 total white cells with 62 per cent. lymphocytes. The percentage of lymphocytes fell in two to four weeks to about 40 per cent. at which it remained, this figure apparently being normal for the district. A short time ago I tried to find if these results had been confirmed or repeated, but did not discover any subsequent reference to investigations on the subject.

I am, Sir, yours faithfully,

H. LETHEBY TIDY.

Devonshire-place, W., Dec. 11th, 1931.

SERUM TREATMENT OF PLAGUE.

To the Editor of THE LANCET.

SIR,—I am grateful to Dr. Naidu and Colonel Mackie for their generous appreciation of my work.[1] The early history of the serum therapy of plague was summarised by Dr. Naidu last year[2]; there are a few points I should like to record here.

Lustig's serum was made at Bombay (1899–1901) by the colleagues of Prof. Lustig and applied fresh to the patients at the Arthur Road Hospital. Whilst it exerted appreciable influence upon the course and fatality of bubonic plague in a small number of cases, the majority succumbed. It was thereupon that my colleagues Berestneff of Moscow and Alfons Mayr undertook to examine the blood. We soon found the key to the heavy mortality, to wit—infection of the blood by the *B. pestis*. The cases were therefore divided into four classes according to the absence or presence of septicæmia, –, +, ++, +++, respectively, a procedure that was subsequently confirmed and adopted by the Plague Research Commission (1907–1910). It was noticed that all ++ and +++ cases invariably died and there were very few recoveries from those with +. Almost all who recovered belonged to – group. Moreover, 60 to 70 per cent. of admissions fell under the septicæmia groups of which ++ and +++ formed the great majority. This then was the explanation of the heavy mortality. All these patients were admitted at a late stage of the disease and belonged to the labouring and poorer classes. The Municipal Corporation and the Bombay Government, who jointly contributed to the expense of the laboratory, stopped further preparation of the serum as the results were obviously not proportionate to the outlay. The experience of the work extending almost over four years was thus lost. It was represented to them that further researches were necessary though on a smaller scale. Had that been done, I am confident that we should not have had to wait for over a quarter of a century for the preparation of a more potent serum. Lustig's serum however showed better results (in twelve-hourly subcutaneous injections of 40–60 c.cm.) in private practice, as patients belonged to a superior stratum of society, and came under observation on the first or second day of illness. That was indeed encouraging. Thereafter Yersin's serum from the Pasteur Institute, the only one available, was used at my hospitals and at other places in this Presidency with good results in the above type.

When Sir Charles Martin arrived in Bombay (1907) with the Plague Research Commission I laid before him the record of my work; he thereupon secured the permission of the Government of India to enable the Commission to inquire into the serum treatment. In spite however of the combined intravenous and subcutaneous methods, the results did not differ materially from those I had obtained in the earlier trials. And finally, the Advisory Committee on Plague Investigation in India reported in 1913, as narrated by Naidu and Mackie in the third para. of their paper. Undeterred by that adverse report, I continued to use Yersin's serum in private practice whereby the average recovery-rate, in sterile cases treated on the first day of illness, came to over 80 per cent. as compared to 25 to 30 per cent. in hospital practice.

As plague continued to prevail throughout India, I made an earnest appeal (1923) to the Government of India to undertake further research, and was agreeably surprised to learn that the Indian Research Fund Association were to finance further investigation. The first-fruits of this work are now available in the valuable contribution of Naidu and Mackie. It is a landmark of advance and holds out the promise that within a short time we shall be possessed of a serum that will control the septicæmia of bubonic plague.

There are certain advantages in the early treatment of plague with serum. The course of illness is reduced almost by half if treatment is begun on the first day. The temperature returns to normal on the ourth day as against eight to ten days in untreated ases. Moreover buboes invariably resolve; when serum s given on the second day, half the cases suppurate nd thereafter there is no difference in this regard. There are, however, certain drawbacks inseparable rom the use of serum. So-called serum disease rolongs convalescence and has to be set off against he rapid neutralisation of the toxins. Vegetarians lmost entirely escape its manifestations. Parsees nd Mahommedans, who are non-vegetarians, suffer n a certain proportion, Europeans most of all. Acute anaphylaxis has been observed whilst the erum is actually running into the vein; coryza, acrymation, pyrosis, and urticarial wheals. In ther cases, severe rigors supervene a few hours fter intravenous injection of even 50 c.cm., followed y high temperature with cardiac distress and weakness: The temperature falls gradually in a few hours, nd all the graver symptoms disappear. Death but arely occurs.

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[1] THE LANCET, Oct. 24th, p. 893.

[2] Ind. Jour. of Med. Res., 1930, xvii., 1259.

I am, Sir, yours faithfully,

Bombay, Nov. 26th, 1931. N. H. CHOKSY.

HIGH HEELS.

To the Editor of THE LANCET.

SIR,—Mr. Roth says that high heels do not project the weight of the body to the fore part of the foot *to a greater extent than* low heels. This is the crux of the matter. I admit that, when standing still, the weight distribution is not disturbed, but, when walking, I say that high heels do project the weight to the fore part of the foot. Observation during the period of short skirts has repeatedly shown me that when walking in high heels, women hold their knee-joints flexed about 15 per cent. permanently. This means that the tibia is inclined in a more forward direction than normal, and, on Mr. Roth's own admission, it follows that the weight of the body will be distributed to a greater extent to the fore part of the foot. Only if very minute mincing steps are taken can the knees be fully extended. Incidentally, it will also be found that if anybody tries to walk extra fast he will find himself keeping his knee-joints slightly flexed and his body inclined forward. It is not therefore surprising that a woman won a walking race in high heels. A mathematical calculation could doubtless be made showing the exact difference of weight distribution consequent on this flexion of the knee-joint. Statistical evidence could also be obtained from any out-patient department. Take 200 men and 200 women consecutively and enumerate the numbers of cases of fallen metatarsal arches. I wager the greater number will occur among the women—that is, among the wearers of high heels. It may well be that women, who do a lot of standing, find that high heels relieve the strain on the instep, but, unless they change into low heels for walking, the relief is purchased at the cost of fallen metatarsal arches.

Mr. Trethowan taught me that the way to prevent flat-foot was to throw the weight of the body to the outer aspect of the feet by walking with the feet straight or even slightly turned in, and, if necessary, by raising the inner border of the sole and heel. That this is the right method my experience in general practice and in an infantry regiment for three years has proved to my satisfaction. Women have told me that they have found flat heels not less but more comfortable and that they can walk miles in them, whereas before they could not do so. Nevertheless, I admit that the human body was not constructed for long continued standing, and useful work could be done in driving this fact home to the public, and so preventing the prolonged standing, usually quite unnecessary, that some occupations demand from pure force of custom.

I am, Sir, yours faithfully,

Bridlington, Dec. 15th, 1931. P. D. H. CHAPMAN.

"DUPLEX THERAPY."

To the Editor of THE LANCET.

SIR,—In your last issue (p. 1333) I noted with interest the report on Mr. G. G. Blake's lecture delivered before the Royal Society of Arts on what he terms "duplex therapy." By this he means the simultaneous applications of diathermy currents with some other current employed in electrotherapy. Reading the résumé of his address, one is given the impression that Mr. Blake is unaware of the fact that the filtering device, which he makes use of and which he praises, has been used for some time by the medical profession to superpose other currents on high-frequency currents. Not knowing exactly at what moment Mr. Blake evolved his apparatus, I might do him an injustice by claiming that I applied the same circuit to medical electricity before him, but I wish to point out that at my suggestion a British firm constructed a diathermy machine incorporating the necessary chokes and condensers well over a year ago. This, after I had experimented and had satisfied myself of the value of combining diathermy with other currents. It is regrettable that Mr. Blake should not have acquainted himself with the literature available on the subject or even perused an electro-medical apparatus manufacturer's catalogue before alluding to his apparatus as a new contribution to medical science. The "contactometer" which he demonstrated, and the importance of which was grossly overrated by the lay audience, was certainly a most ingenious if elaborate piece of apparatus. It is, however, worthy of note that although thousands of diathermy treatments on eyes have been carried out by myself and my assistants, not once would the apparatus have had an opportunity of cutting off the current, to exhibit the importance with which it was invested by the lecturer. For, as your reporter justly remarks, "damage would already be done when the contactometer gave evidence of it," and as he further suggests, correct technique should preclude any possibility of accidents happening. I fear I cannot however agree with his conclusion as to "the need for the physicist interested in biology in the investigation of problems that confront the practitioner of physical medicine." The need is a sound knowledge of physics in the practitioner of physical medicine. I am, Sir, yours faithfully,

Wimpole-street, W., Dec. 15th, 1931. PH. BAUWENS.

DONATIONS AND BEQUESTS.—Among other bequests the late Mrs. Rose Ray Coyne Goldberg, of Grosvenor House, Park-lane, W., left £2000 to the Hospital for Sick Children, Great Ormond-street, for cots to be known as the "Arthur Hilton Greaves" and "The Ray Greaves" cots; £1000 each to the Royal Hospital for Incurables, Putney, the Hospital for Consumption, Brompton, Guy's Hospital, St. Thomas's Hospital, and the London Hospital; and the ultimate residue of the property equally between the last-named five hospitals.—The late Lady Battersea left, in addition to many private and personal bequests, £10,000 between the Cromer Hospital, the Metropolitan Hospital, Kingsland-road, the Jewish Association for the Protection of Girls and Women, and the Jewish Board of Guardians, and £1000 to the Metropolitan Hospital Convalescent Home.

MEDICAL NEWS

Royal College of Surgeons of England.

At a meeting of the Council on Dec. 10th, with Lord Moynihan, the President, in the chair, the following were admitted to the Fellowship :—

Herbert Elwin Harris, M.B. Camb. ; Charles Skinner Hallpike, M.B. Lond. ; Edward Jacobson, L.R.C.P. ; Diana Jean Kinloch Beck, M.B. Lond. ; Gertrude Mary Beatrice Morgan, M.D. Camb. ; Charles Langley Owen, M.B. Camb. ; Otto Hooper, M.B. Oxf. ; Evan Stanley Evans, L.R.C.P. ; John Kirkpatrick Monro, M.B. Camb. ; Hugh Elwyn James, M.B. Lond. ; Arthur Bernard Pain, M.B. Leeds ; Ronald William Raven, L.R.C.P. ; Ahmed El Sayed Handousa, L.R.C.P. ; Guy Simonds Storrs, L.R.C.P. ; James Charles Frederick Lloyd Williamson, L.R.C.P. ; Trevor Hellier Berrill, M.B. Bristol ; Edward Clive Barber Butler, M.B. Lond. ; John Barnard Blaikley, L.R.C.P. ; Benjamin William Rycroft, M.D. St. And. ; Sankta Narain Mathur, M.B. Lucknow ; Alexander Michael Boyd, M.B. Lond. ; Vadankan Hariharan, M.B. Madras ; Alan Seymour Philps, L.R.C.P. ; Norman Cecil Tanner, M.B. Brist. ; Flora Hargreaves, M.B. Lond. ; Thomas Henry Wilson, M.B. Lond. ; Philip Vernon Reading, M.B. Lond. ; Peter Byers Ascroft, M.B. Lond. ; Margaret Moore White, M.B. Lond. ; Henry Anthony Phillips, M.D. Melb. ; Herbert George Letcher, M.B. Adelaide ; Denis Smith Poole Wilson, M.B. Dubl. ; Harold Alfred Body, M.D. Melb. ; Dhanjishaw Dorabjij Boovariwala, M.B. Bomb. ; Sorabji Burjorji Cooper, M.B. Bomb. ; Alexander Cruickshank, M.B. Aberd. ; *Rangi Lal, M.B. Lucknow* ; *David Matthew*, Mitchell, M.B. N.Z. ; Douglas Harold Mitchell, M.B. Melb. ; Lindsay Morgan Park, M.B. N.Z. ; Eric Evan Price, M.D. Melb. ; Lindsay Sangster Rogers, M.B. N.Z. ; Thomas Osler Sayle, M.B. Melb. ; Hugh Hedley Skeoch, M.B. Sydney ; Victor Solomon Stone, M.B. Melb. ; and Fauset Welsh, M.B. Birm.

The Diploma of Membership was granted to Eric Allister Knappett (University College), and the Licence in Dental Surgery to the following :—

F. H. Beauchamp, F. C. Blaaberg, R. W. F. Brotherton, G. B. Brummitt, Edward Burn, F. W. Clare, Stanley Clompus, J. E. Darlow, E. R. Dowland, W. A. Duly, H. G. Earnshaw, A. F. Edmonds, J. C. Edmondson, A. J. Evans, W. G. Finnie, A. T. G. Garnett, R. J. G. Grewcock, J. T. Holford, J. N. Holman, J. B. L. Holzer, E. F. Hopson, J. H. Hovell, C. L. Hudson, W. L. Jackson, J. C. B. Jones, C. V. Kark, N. H. Knowles, Ronald Lawton, E. G. W. Lewis, J. G. Lucas, H. R. Mandviwalla, P. A. Mertz, L. R. Millership, Henry Milligan, H. C. Morgan, Ellen J. R. Nichols, A. C. Pani, A. W. Quinton, D. J. Rees, J. G. Richardson, J. A. Robinson, Bangalore Sampath, W. G. Sandison, Veerasekaram Sinnetamby, N. H. Smith, F. A. Soper, Margaret Storey, C. G. Tarry, R. A. Thatcher, Edward Tribe, A. McD. Watson, V. H. Weeks, W. M. Wellings, S. M. Whitteridge, F. R. McN. Willis, and Eric Wood.

Mr. E. Rock Carling, Mr. A. E. Webb-Johnson, and Mr. Claude H. S. Frankau, were re-elected Members of the Court of Examiners. Sir John Rose Bradford, was elected a member of the executive committee of the Imperial Cancer Research Fund on the nomination of the general committee of the Fund. It was reported that the Secretary of State had appointed Mr. W. Sampson Handley to be a member of the advisory committee on the administration of the Cruelty to Animals Act, 1876, in place of Sir Charters Symonds. It was reported that a legacy of £50, free of duty, for the laboratory fund of the College, had been bequeathed by the late Dr. F. W. Collingwood.

The Council considered the following resolution which was carried at the Annual Meeting of Fellows and Members on Nov. 19th: "That this forty-third annual meeting of Fellows and Members of the Royal College of Surgeons reaffirms that it is essential that Members, who constitute nine-tenths of the College, should be admitted to direct representation on the Council, especially having regard to the striking result of the poll of members taken last year." The following reply to the resolution was adopted: "The Council, having considered the report of the proceedings at the annual meeting of Fellows and Members, adhere to the opinion expressed at their meeting in January, 1931."

At the Primary Examination for the Fellowship held from Dec. 1st to 12th, 180 candidates presented themselves, of whom 53 were approved and 127 were rejected. The following are the names and medical schools of the successful candidates, viz. :—

S. W. Allinson, M.B. Lond., Univ. Coll. ; A. W. Badenoch, M.D. Aberd., St. Mary's ; G. T. Balean, Guy's ; H. C. Barrett, M.B. N. Z., Otago ; J. Bastow, M.D. Melb., Middlesex ; G. H. Bateman, B.M. Oxf., King's Coll.; R. H. R. Belsey, St. Thomas's ; M. J. Bennett-Jones, M.B. Liverp., Middlesex ; J. G. Bowen, M.B. Lond., London ; V. R. Clifton, M.B. Sydney, St. Mary's ; R. B. W. A. Cole, Durham ; A. L. d'Abreu, M.B. Birm., Middlesex ; R. P. Dalal, M.B. Bombay Middlesex ; R. S. de Bruyn, M.R.C.S., Guy's and Middlesex ; Jean Marguerite Dollar, M.B. Lond., London (R.F.H.) Sch. of Med. ; C. L. S. Duke, M.B. Sydney, Middlesex ; R. S. Ellis-Brown, Guy's ; F. I. Evans, Camb. and Guy's ; W. J. Ferguson, M.B. Lond., Guy's ; J. D. Fergusson, Camb. and St. Thomas's ; E. O'D. C. Grattan, Camb. and St. Thomas's ; A. Hilmy, Cairo and St. Bart.'s ; J. E. Hughes, M.B. Adelaide, Middlesex ; A. I. Hunter, M.B. N. Z., Otago ; D. M. Jones, Cardiff and St. Bart.'s ; L. E. Jones, St. Thomas's ; B. L. Kapur, M.B. Punjab, Middlesex ; A. McDowall, M.B. Edin., St. Mary's ; D. B. McGavin, M.B. Camb., St. Bart.'s ; A. H. McIndoe, M.B. N. Z. ; Jocelyn Adelaide M. Moore, M.B. Lond., London (R.F.H.) Sch. Med. and Univ. Coll. ; R. F. Mowll, King's Coll. ; J. H. Moynihan, M.R.C.S., Charing Cross ; C. S. Patel, M.B. Bombay, Bombay and Middlesex ; P. H. L. Playfair, M.R.C.S., King's Coll. and St. Mary's ; D. C. Price, M.B. Lond., St. Bart.'s ; J. S. M. Robertson, M.B. Glasg., King's Coll. ; M. A. Robertson, M.B. Camb., London ; I. G. Robin, Camb. and Guy's ; Enid H. Rockstro, M.B. Lond., Univ. Coll. ; J. R. Rose, Camb. ; B. J. Sanger, London ; N. T. H. Schafer, M.B. Melb., London ; G. M. A. Shaikh, M.B. Bombay, Middlesex ; N. L. Shepherd, M.B. Lond., King's Coll. ; T. T. Stamm, M.B. Lond., Guy's ; D. M. Stern, M.B. Camb., London and Univ. Coll. ; F. G. St.C. Strange, London ; T. G. Tregaskis, St. Bart.'s ; R. W. D. Turner, St. Thomas's ; F. H. Weston, Guy's ; C. W. K. Willard, Univ. Coll. ; S. L. Wilson, M.B. N. Z., *Otago*.

University of London.

At recent examinations the following candidates were successful :—

THIRD EXAMINATION FOR M.B., B.S.

Honours.—(*a*, *c*) F. R. Dennison, King's Coll. Hosp. ; (*a*, *b*) A. J. B. Goldsmith, Middlesex Hosp. ; (*a*, *b*, *d*, *University Medal*) C. H. S. Harris, and (*d*) H. H. Langston, St. Bart.'s Hosp.

(*a*) Distinguished in Medicine. (*b*) Distinguished in Pathology. (*c*) Distinguished in Forensic Medicine. (*d*) Distinguished in Surgery.

Pass.—I. S. Acres, London Hosp. ; J. H. Attwood, St. Bart.'s Hosp. ; Ellen M. Barnes, Univ. Coll. Hosp. ; G. J. Bell, Charing Cross Hosp. ; P. S. Bell, Westminster Hosp. ; H. W. Benham, Univ. Coll. Hosp. ; R. C. Bennett, St. Bart.'s Hosp. ; David Bielenky, Westminster Hosp. ; K. C. Buck, St. Mary's Hosp. ; E. H. Capel, Middlesex Hosp. ; Anthony Caplan, St. Bart.'s Hosp. ; W. I. Card, St. Thomas's Hosp. ; Rachel P. Carr, Roy. Free Hosp. ; F. W. Chippindale, Guy's Hosp. ; A. B. Cook, St. Bart.'s Hosp. ; Margaret E. Cope, Roy. Free Hosp. ; H. E. B. Curjel, St. Thomas's Hosp. ; J. O. F. Davies, Middlesex Hosp. ; S. B. Dimson, Univ. Coll. Hosp. ; J. A. Doherty, Univ. of Durham ; E. H. Evans, Univ. Coll. Cardiff and Univ. Coll. Hosp. ; R. E. M. Fawcett, St. Bart.'s Hosp. ; P. B. Fernando, Ceylon Medical Coll. and Univ. Coll. Hosp. ; J. F. Fisher, St. Bart.'s Hosp. ; Phyllis M. Fraser, Roy. Free Hosp. ; S. G. French, King's Coll. Hosp. ; W. H. George, London Hosp. ; B. W. Goldstone, St. Mary's Hosp. ; Charlotte Gray, Univ. Coll. Hosp. ; Brynellen Griffiths, Univ. Coll. Cardiff and Charing Cross Hosp. ; E. B. Grogono, London Hosp. ; J. H. Gubbin, St. Bart's Hosp. ; Eric Gwynne-Evans, Univ. Coll. Hosp. ; Bernard Halfpenny, Middlesex Hosp. ; J. T. P. Handy, Univ. Coll. Hosp. ; A. R. C. Higham, St. George's Hosp. ; J. M. Harker, London Hosp. ; Erica M. R. Hutton, Roy. Free Hosp. ; C. D. P. Jones, Univ. Coll. Hosp. ; Alexander Kahan, St. Thomas's Hosp. ; Betty M. Kemp, Roy. Free Hosp. ; B. W. Knight and W. F. McGladdery, St. Bart.'s Hosp. ; E. R. R. Dorothy Makepeace and K. S. May, King's Coll. Hosp. ; D. K. Mellon, Guy's Hosp. ; Ruth Milne, Roy. Free Hosp. ; Mulvany, King's Coll. Hosp. ; W. C. W. Nixon, St. Mary's Hosp. ; R. J. L. O'Donoghue, Guy's Hosp. ; R. M. Paton, St. Thomas's Hosp. ; Oliver Plowright, Guy's Hosp. ; W. M. Priest, Univ. Coll. Hosp. ; Edward Renbom, St. Bart.'s Hosp. ; J. M. Robertson, Guy's Hosp. ; Phyllis M. Robottom, Westminster Hosp. ; Ben Southwell, Guy's Hosp. ; A. E. Stevens, London Hosp. ; M. R. Thomas and W. J. Tindall, Univ. Coll. Hosp. ; Margaret W. Trowell and Phyllis Wade, Roy. Free Hosp. ; R. S. Wale, King's Coll. Hosp. ; Joan B. Walker, Roy. Free Hosp. ; F. L. Wheaton, Middlesex Hosp. ; Mary J. Wilmers, King's Coll. Hosp. ; and Dorothy Woodman, Roy. Free Hosp.

The following students have passed in one of the two groups of subjects.

Group I.—J. F. E. Bloss, St. Thomas's Hosp. ; E. F. Claridge, London Hosp. ; Barbara G. C. Clarke and R. C. Cohen, Univ. Coll. Hosp. ; K. V. Earle, St. Thomas's Hosp. ; Mary Evans, King's Coll. Hosp. ; J. T. Griffiths, Univ. Coll. Hosp. ; L. J. Hackett, St. Bart.'s Hosp. ; Florence D. Hawes, Roy. Free Hosp. ; C. B. Hinkley, St. Thomas's Hosp. ; L. A. Hiscock, St. Bart.'s Hosp. ; Janet Y. Laidlow, Roy. Free Hosp. ; William Ogden, St. Bart.'s Hosp. ; H. J. C. Page, St. Mary's Hosp. ; S. R. C. Price, King's Coll. Hosp. ; L. K. Robson, Guy's Hosp. ; A. G. Sanders, St. Thomas's Hosp. ; Margaret Skelton, Univ. Coll. Hosp. ; D. G. Snell and R. G. W. Southern, St. Thomas's Hosp. ; Winifred P. Thomas, Univ. Coll. Hosp. ; R. S. Trueman, St. Bart.'s Hosp. ; Margherita N. Walden, Roy. Free Hosp. and Shirley E. Whitaker, Univ. Coll. Hosp.

Group. II.—A. E. Bowling, Univ. of *Leeds* ; M. L. Bynoe, King's Coll. Hosp. ; R. F. M. Child, St. Mary's Hosp. ; N. F. D. de Silva and G. W. Duncan, Univ. Coll. Hosp. ; David Erskine, Guy's Hosp. ; H. E. Harding, London Hosp. ; G. F. Henderson and G. H. Pearce, Univ. Coll. Hosp. ; D. A. Smith, St. Bart.'s Hosp. ; W. W. Walther, Univ. Coll. Hosp. ; and A. L. Wingfield, St. Thomas's Hosp.

Victoria University of Manchester.

At recent *examinations* the following candidates were successful :—

FINAL EXAMINATION FOR M.B. AND CH.B.

Margaret M. Bodoano, G. B. Carter, Jane Druker, Benjamin Dunkerley, G. H. M. Franklin, K. P. Giles, Jessie Goldstone,

J. K. Hadfield, Neville Harburn, Gerald Maizels, and Alice Speight.

Part I.—A. C. Ashton, Thomas Chadderton, C. H. Gattie, B. H. Gillbanks, Marion W. Perry, and Muriel N. Strange.

FINAL EXAMINATION FOR B.D.S.

Second Class Honours.—J. L. Torkington.

FINAL EXAMINATION FOR DIPLOMA IN DENTISTRY.

F. R. Morrey and I. R. Stronach.

Royal Society of Medicine.

The President and Mrs. Watts Eden received Fellows and their guests at a social evening at the Society's house in Wimpole-street, on Monday last. A Russian film, the Roof of the World, was reassuringly introduced by the President as neither medical nor scientific, and proved to portray the adventures of a Russo-German expedition sent out from Soviet Turkestan. They set off with 80 tons of luggage on strings of camels and overloaded pack horses, and after a long trek over the rocky passes of two mountain ranges made a camp in a high valley, whence a smaller expedition proceeded on foot to climb Mount Lenin. After this the film showed nothing but ice and rock and crevasses, with never a plant except a constant thistle which turned out to be a piece of fluff in the projector. The photography was beautiful and the performance all too short.

The Society's house and library will be closed from Wednesday, Dec. 23rd, to Saturday, the 26th, both days inclusive.

Royal Institute of Public Health.

A course of lectures on Rheumatism and Arthritis as a Public Health Problem will be given at this institute, 37, Russell-square, London, W.C., at 4 P.M. on Wednesdays from Jan. 20th to Feb. 24th inclusive. The lecturers will be Sir William Willcox, Dr. R. Fortescue Fox, Dr. D. M. Connan, Dr. M. B. Ray, Dr. A. R. Neligan, and Dr. W. S. C. Copeman. At the end of the course there will be a demonstration at the British Red Cross Society's Clinic for Rheumatic Diseases on March 2nd at 11 A.M.

Instruction for D.P.H.

A three months' course of lectures and demonstrations on clinical practice and in hospital administration will be given at the Brook Hospital, Shooter's Hill, Woolwich, S.E. 18, by Dr. J. B. Byles, the medical superintendent, on Tuesdays and Fridays at 3 P.M., and alternate Saturdays at 11 A.M., from Tuesday, Jan. 5th, 1932. Particulars may be had from the Medical Officer of Health, London County Council, Public Health Department (Special Hospitals), Victoria Embankment, E.C. 4.

Institute of Medical Psychology.

Twenty lectures on Psychological Types and Mechanisms will be given in connexion with this Institute (formerly the Tavistock-square Clinic for Functional Nervous Disorders) at Friends' House, Euston-road, London, N.W., on Wednesdays, from Jan. 20th, 1932. Two lectures will be given on each day, the first by Dr. E. Graham Howe (3–4 P.M.), and the second by Dr. H. G. Crichton Miller (4.30–5.30 P.M.). The course is open to members of the medical profession only. Particulars may be had from the hon. lecture secretary at the Institute, 51, Tavistock-square, W.C. 1.

St. Mary's Hospital: Western Reunion.

Former students of St. Mary's Hospital, London, are holding a Western Reunion under the chairmanship of Dr. J. Odery Symes, on Saturday, *Dec. 10th*, at the Grand Pump Room Hotel, Bath, where a dinner will be held at 7 P.M. The Spa Committee have invited all visitors to a demonstration of methods of treatment at the Baths on the following Sunday morning, and to a tour of the Roman Baths. St. Mary's Hospital Rugby XV are playing Bath on the Saturday afternoon. The hon. secretary of the Reunion is Dr. J. Hobart Nixon, of Oakleigh, Chippenham.

Fellowship of Medicine and Post-Graduate Medical Association.

A course of lectures on Treatment will be given at the rooms of the Medical Society of London, 11, Chandos-street, W., on Wednesdays at 4 P.M. from Jan. 13th. A course of six lectures on Endocrinology will be given by Dr. Langdon Brown at the same place on Mondays and Fridays at 8.30 P.M. from Jan. 11th. Dr. Bernard Schlesinger will give a lecture-demonstration on Rheumatic Infection and Heart Disease in Children at the Children's Heart Hospital, West Wickham, Kent, on Saturday, Jan. 2nd, from 10.30 to 12 noon. Applications must be received not later than Dec. 28th. In future all special courses and lectures arranged by the Fellowship will be open only to its members. The address is 1, Wimpole-street, London, W.1.

Hospital Fees at Bradford.

About a year ago a scheme was formed at Bradford under which trade-unions, friendly societies, and other bodies undertook to contribute 1s. per head per year to the St. Luke's General Hospital on behalf of their members, so that in case of illness a working man or any of his family might receive free treatment both during illness and convalescence. This payment having been found inadequate the contributory bodies are being informed that it is necessary to increase it to *2s. 6d.*

Dreadnought Hospital "Christmas Draw."

For the last eight years a "Christmas draw" has been organised on behalf of this hospital, and for the current one 60,000 sixpenny tickets had been sold when Scotland Yard last week issued a warning that if the enterprise were continued a prosecution would follow. It had been hoped by this means to raise £2000 for the purchase of two new ambulances, and the committee have expressed the hope that ticket holders will allow their money to remain.

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

MONDAY, Dec. 21st.—10 A.M., Gynæcological Wards; Genito-urinary Operations; Skin Department. 11 A.M., Surgical Wards. 2 P.M., Surgical Wards; Medical, Surgical, Eye, and Gynæcological Out-patients.

TUESDAY.—9.30 A.M., Operations. 10 A.M., Medical Ward Demonstration; Dental Department. 11 A.M., Throat Operations. 11.30 A.M., Surgical Demonstration. 2 P.M., Operations; Medical, Surgical, and Throat Out-patients.

WEDNESDAY.—10 A.M., Medical Wards; Children's Medical Out-patients. 2 P.M., Medical, Surgical, and Eye Out-patients. 2.30 P.M., Gynæcological Operations. 4.45 P.M., Venereal Diseases Demonstration.

THURSDAY.—10 A.M., Neurological Department. 11.30 A.M., Fracture Demonstration. 2 P.M., Medical Surgical, Eye, and Genito-urinary Out-patients. 2.30 P.M., Operations.

Appointments

CAMPBELL, A., McC., M.B., Ch.B. Glasg., M.O.H., has been appointed a Medical Referee under the Workmen's Compensation Act for the Island of Islay, Argyll.

Certifying Surgeons under the Factory and Workshop Acts: HEWITT, R. C., M.B., Ch.B. Camb. (Northwich); LEWIS, E. W., M.B., Ch.B. Edin. (Heytesbury, Wiltshire); and SMORFITT, F. A., L.R.C.P., L.R.C.S. Edin., L.R.F.P.S.G. (Southam, Warwick).

Births, Marriages, and Deaths

BIRTHS.

EARLY.—On Dec. 7th, in London, the wife of Captain E. P. N. M. Early, I.M.S., of a daughter.

HORSFORD.—On Dec. 13th, at Harley-street, W., the wife of Cyril Horsford, M.D., F.R.C.S., of a daughter.

MARRIAGES.

COPE—ANDERSON.—On Dec. 5th, at the United Methodist Church, Mallinson-road, Wandsworth, Albert Ernest Cope, M.D., to Augusta Margaret Anderson.

WHITE—QUILTER.—On Dec. 2nd, at St. John's Church, Crowborough, Norman L. White, F.R.C.S., of University College Hospital, London, to Sylvia Mary Quilter, of Cobs, Guernsey.

DEATHS.

GIBBONS.—On Dec. 12th, at Folkestone, Lister Gibbons, M.R.C.S., L.R.C.P., aged 67 years.

RALPH.—On Dec. 6th, at Boulevard Thiers, St. Jean-de-Luz (B.P.), Charles Hugh Danson Ralph, M.R.C.S., L.R.C.P., late Colonial Medical Service (Gold Coast and Cyprus), aged 66 years.

RANKIN.—On Dec. 11th, at Harley-street, Nicol McNicoll Rankin, M.C., M.B., Ch.B.

WILSON.—On Dec. 10th, 1931, in his 80th year, at 10, Part-street, Southport, David Wilson, M.D. Glasgow, Hon. Maj. R.A.F., late of Paddock, Huddersfield.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages and Deaths.

Briefly the thesis is that when abnormal excitation from a diseased internal organ reaches the spinal cord the excitability of that spinal segment becomes exaggerated so that ordinary stimuli flowing into that segment from its corresponding somatic region may give rise to a sensation of pain, to muscular rigidity, and to cutaneous hyperæsthesia in that region.

That all disease processes within the viscera can only express themselves by referred pain is however too big a claim and the existence of real visceral pain is, as noted above, once more recognised. As a simple example I think most of us will agree that simple intestinal colic conveys to the mind an overwhelming impression of being felt in the bowel itself. It may be quite unassociated with muscular rigidity, so much so that pressure or massage may actually relieve it. Contrast this with the muscular rigidity and tenderness which attend an acute inflammatory lesion such as appendicitis, which calls forth the most marked referred signs, the rationale of which is obvious—viz., to lessen the risk of extension of the inflammation. The gall-bladder supplies a very good example of the coexistence of true visceral pain and of referred pain and rigidity. An inflamed gall-bladder is tender, as anyone can satisfy himself by palpating the right hypochondrium while the patient takes a deep breath. As the gall-bladder is felt impinging on the examining fingers immediate tenderness is elicited and it is surely obvious that an organ that is capable of exhibiting objective tenderness must be capable of subjective pain.

Gall-stone colic and the severe pain of cholecystitis may be experienced in the epigastrium, but the more it is felt in the right hypochondrium the more I think it is accompanied by muscular rigidity. It would after all be a poor effort of nature to supply the protection of muscular contraction away from the spot where it was most needed. A corollary of this is that the greater and the more localised the muscular rigidity, the greater the probability that the disease process is localised under that region. It is the peritoneum lining the anterior abdominal wall which is the most sensitive, and an abscess deep in the abdominal cavity free from any adhesions to the abdominal wall need give rise to no rigidity. Deep pressure will thus produce tenderness, but if the abdominal muscles are voluntarily contracted the same pressure is painless. Deep localised abscesses may be singularly free from pain, and discomfort may be the only subjective complaint.

Widespread and extreme rigidity and tenderness occur in generalised acute peritonitis, but two points should be noted. Firstly, they are sometimes absent, the abdominal symptoms comprising discomfort and slight tenderness at the most, with increasing distension, whilst the gravity of the infection is indicated by profound constitutional disturbance. In these very severe cases the slightness of the abdominal symptoms and signs has not infrequently led to a mistake in diagnosis and to a fatal delay in operating. Secondly, in acute peritonitis the early rigidity may diminish though resistance will be maintained by increasing distension.

On the other hand we are all familiar with those patients, usually women of a highly irritable nervous system, who not only complain of tenderness and discomfort whenever you palpate their abdomen, but whose whole abdominal parietes are so contracted as to form an impenetrable obstacle to adequate examination. Fortunately, these cases rarely give rise to error.

The fact that visceral disease gives rise to referred disturbances in more superficial structures and that a rational explanation attributes these disturbances to a heightened irritability of the spinal segment involved raises the question whether the converse should not hold good, whether the heightened irritability resulting from some superficial painful injury or disease should not give rise to painful symptoms referred to the viscera innervated from the same segment. I have little doubt but that this is the case though I can give no examples of it. Gross injuries to the abdominal parietes such as happened in the war could so damage the deeper structures as to render it difficult to disentangle any referred symptoms, but a superficial burn for instance with its extensive injury to superficial nerve-endings would be the kind of lesion that might be expected to be associated with symptoms or pains referred to the stomach or gall-bladder or colon.

Sensibility of the Alimentary Canal.

A careful study of the sensibility of the alimentary canal was made by Hurst who, in his Goulstonian lecture of 1911, reviewed the older work and added valuable new knowledge by his own observation and experiments.

The alimentary canal was found to be insensitive to tactile stimuli from the commencement of the œsophagus to the junction of the rectum with the anal canal. Heat was also a very inadequate stimulus except as regards the œsophagus and anal canal, but the very interesting fact was established that the sensations of heat or cold experienced in the epigastrium on drinking hot or cold liquids is aroused in the lower end of the œsophagus and referred to the stomach which is itself insensitive to these stimuli.

Another important observation was that dilute hydrochloric acid—0·4 to 0·5 per cent.—introduced into the normal stomach, and even into the stomachs of six patients with gastric ulcer, produced no sensation whatever. On the other hand, W. L. Palmer, using a large quantity of 0·5 per cent. HCl, found that it did cause their typical pain in patients with ulcer after a latent period of at least six minutes, so that it seems clear that the acid can at least activate the pain-producing mechanism, presumably by irritating the surface of the ulcer and giving rise to a reflex increased muscular activity. The relief of pain and discomfort in ulcer by the use of alkalis is one of the most certain of therapeutic effects and supports the view of the importance of acid in the production of pain, even though the action may not be the direct result of stimulation of nerve-fibres.

That typical ulcer pain may however be present without the presence of acid is shown by the fact that it does occur in those rare cases of gastric ulcer with hypochlorhydria or even achlorhydria and I believe that these cases are also relieved by alkalis. An alkali will certainly sometimes relieve the pain of cancer of the stomach, in which free hydrochloric acid is so often absent or diminished, but in this case the alkali may act by neutralising the influence of lactic acid.

The pain of duodenal ulcer which comes on about a couple of hours after food when the bulk of the meal has left the stomach has been attributed by Hurst to a rise in muscle tonus which occurs as the bulk of the gastric contents diminishes.

The close simulation of the symptoms of duodenal ulcer sometimes seen in cases of appendicitis and cholecystitis would seem to diminish the rôle of acid in the production of gastric pain, but in both appendicitis and perhaps more frequently in cholecystitis a genuine hyperchlorhydria may be present and activate the pain-producing mechanism. On the other hand the fact that such cases need not be associated with hyperchlorhydria may be explained by the afferent impressions from the appendix and gall-bladder being themselves able to give rise to reflex gastric spasm, and that one part of the alimentary canal may give rise to marked reflex activity in another distant part is shown by the reflex activity of the colon which may follow the eating of a meal, a reflex so rapid and so impressive that patients are often convinced that their food goes straight through them.

The rôle of hydrochloric acid in the production of pain is then somewhat uncertain, but it would be unwise to belittle its powers since it is at any rate certain that it keeps an ulcer from healing, and that the most successful treatment of ulcer is that which aims at lowering the acidity of the stomach contents.

Sensation of Fullness and Distension.

Hurst studied the sensation of distension by inflating the stomachs of two healthy men through a tube connected with a manometer. A sensation of fullness and tightness developed at a pressure of 12–14 mm. of mercury, but with a slight fall in the intragastric pressure, occurring after 20 seconds and presumably due to relaxation of the tone of the muscle-fibres of the stomach, there was a simultaneous disappearance of the sensation of fullness. On injection of more air the pressure again rose, the sensation of fullness returned, again disappearing as the pressure fell. The importance of this observation lies in the fact that the feeling of relief followed on a slight fall in the intragastric pressure without any air having escaped through the œsophageal tube—a fall which may fairly be ascribed to a lessening of the tension of the muscle-fibres of the stomach. It is the experimental counterpart of the relief of the feeling of distension and discomfort after eructation of wind.

Obviously the capacity of the stomach varies enormously and a large meal need not give rise to any discomfort, whilst on the other hand a small meal rapidly swallowed may cause a great deal. In cases of malignant disease of the stomach a small meal may cause marked discomfort and pain owing to the inability of the infiltrated stomach wall to relax. This is well seen in the leather-bottle stomach, the capacity of which can hardly vary at all and in which only small meals are possible, though even here discomfort only may follow each meal, without severe pain.

Distension of the stomach by gas is a very fertile source of abdominal discomfort, and both in ulcer and in cholecystitis large quantities of gas can be eructated in a very short time. The amount may be far too great to be accounted for by any process of fermentation and the likeliest explanation is the regurgitation of alkaline duodenal contents into the acid-containing stomach, with resulting gas formation. I am certain that this rapid and copious gas formation can occur in the complete absence of the aerophagy which is credited by some as its exciting agent.

J. A. Ryle in his Goulstonian lectures in 1925, crystallized the modern view of gastric sensations very clearly in the following statement :—

> "Intragastric muscular tension may obviously be influenced by many factors, including the tonic and peristaltic activity and the elasticity of the stomach wall itself, the nature and bulk and rate of introduction of the stomach contents and the patency or otherwise of the pyloric and cardiac sphincters. Upon various combinations and modifications of these factors and upon disturbances of motor rhythm, the majority of all gastric sensations—whether normal or morbid—depend, the sensations in each instance originating in the muscle-fibre and being conducted by the nerves distributed to it. Similar properties pertain to all the hollow viscera and indeed it would be natural to suppose with all of them that the most essential perception of which they should be capable is the perception of states of emptiness and fullness and of muscular hypertonus and hypotonus."

Intestinal Discomfort.

One thing we may be grateful for is that the longest part of our intestinal canal—the small intestine—gives us not only the least recognisable sensation of discomfort or pain but is in fact astonishingly free from disease of any kind. It is involved with the rest of the alimentary canal in acute poisoning or toxic processes and it suffers in certain diseases such as typhoid and tuberculosis, but with the exception of these secondary disturbances, which most of us escape, the ileum attends to its work with silent efficiency and with astonishing speed. Considering its length it is surprising how quickly a barium meal reaches the cæcum, but this great length provides a very large area for absorption and the digested foodstuffs can therefore disappear from the intestinal canal with great rapidity. The stomach and duodenum give rise to an enormous amount of discomfort and pain in the world, but once the food has reached the ileum it disappears from the ken of nearly all of us though its sojourn in the colon is again the source of endless misery to mankind.

I have often thought that the intestinal gas is worthy of more attention than it receives. As regards its quantity it must in health be almost a constant, for were it not so our contour might vary from hour to hour and our trouser belts would be the despair of our tailors. Its functions are not unimportant, as in the first place it forms an elastic buffer to protect the delicate abdominal contents which, unlike the heart and lungs, are not sheltered behind a bony cuirass. In the second place the practically constant distension must maintain the intestine in a physiologically optimum state as regards the condition and area of the absorbing surface of the mucous membrane. The function of the small intestine is the absorption of digested foodstuffs and to facilitate this function the surface of the mucous membrane is spread widely open as the liquid contents pass onward. With a contracted tube the area of absorbing surface would be very much smaller. Thirdly, the constant distension will doubtless achieve that position and that tonus of the plain muscle-fibres from which they can exercise their optimum effect in propelling the contents.

Any degree of intestinal distension beyond what I have called the constant is accompanied by feelings of fullness and discomfort and it might be expected that any deviation from the normal in the opposite direction—viz., a diminution of gas—would be productive of discomfort. Certainly local spasm is productive of discomfort or of severe symptoms of obstruction and the close apposition of the mucous membrane with obliteration of the canal presents a difficulty as regards the re-establishment of the patency of the gut. In the colon the secretion of mucus which glues the surfaces together will doubtless further interfere with the reopening of the gut and its actual reopening may be attended with the severe pain which may occur in cases of muco-membranous colic.

Another condition which is a fertile source of abdominal discomfort is visceroptosis, and the altered position of the alimentary canal with stretching of mesentery and ligaments is in itself a sufficient explanation of the symptoms. The rather surprising fact however is that visceroptosis is compatible with perfect health, and that when symptoms do occur there is rarely any reason to suppose that any change in the visceroptosis as such has taken place.

Normal digestion is after all compounded of a great many factors, mechanical, chemical, nervous, and so forth, and as with so many of our vital functions there is a large reserve of power which can compensate for defects and this must be the case in visceroptosis. The various symptoms moreover are frequently first brought out not by any special gastro-intestinal or other abdominal disturbance but as the result of some general illness and especially when physical fatigue and mental exhaustion combine to exert their sinister influence.

Cholecystitis and Gall-stones.

The symptoms of a classical attack of biliary colic are usually unmistakable, but they form a very small item in the long history of cholecystitis, and as it is said that gall-stones are present in 10 per cent. of the people over 20, it is pretty safe to say that much of the dyspepsia of modern days is attributable to that cause alone. As a rule it lacks the precision of the symptoms of gastric or duodenal ulcer though curiously enough it may simulate either of those troubles very closely.

The symptoms are rather more persistent than those of ulcer, which so often occur in bouts with intervals of freedom, and flatulence is a very marked symptom. Nausea and vomiting are not uncommon and pain may be present in the gall-bladder region or in the region of the scapula or right shoulder. The pain varies from slight discomfort to real pain and is probably compounded of various causes. There is the true visceral pain, the pain from extension of the inflammation to the peritoneal coat, and I think also that the peristaltic movements of the stomach and the weight of the full stomach must pull on the tender gall-bladder through the adhesions which are frequently present between it and the duodenum. Discomfort may be felt in the epigastrium as well as in the gall-bladder region and there is little doubt that cholecystitis is one of the common causes of abdominal discomfort.

Localisation of Abdominal Discomfort.

Some of the abdominal viscera may be regarded as comparatively fixed, but the alimentary canal can achieve a considerable mobility, though even here certain parts, such as the duodenum and the splenic flexure of the colon, are fairly fixed in their respective positions. The position of pain or discomfort is of great diagnostic significance and fortunately they are in the main felt in the region of the part involved. I say fortunately, for if this were not the case then the position of pain would present an obstacle instead of an aid to diagnosis. It is true that in certain cases pain and discomfort may be experienced in a position rather remote from the cause; thus renal pain may start in the groin and appendicular pain is often umbilical in situation at the onset of appendicitis, though it shifts to the right iliac region when the peritoneum becomes involved. Appendicular dyspepsia is commonly epigastric in its manifestations. But with certain exceptions such as these the site of pain is of the greatest help. Hepatic and splenic pains and discomforts are experienced in their respective hypochondriac regions and pancreatic pain in the epigastrium. Pain in the colon is very accurately related as far as the ascending and descending colon is concerned, but in the case of the transverse colon its mobility diminishes the value to be placed on the site of pain though it is usually below the umbilicus. Any acute localised peritonitis is accurately localised by the seat of pain and tenderness.

The association of abdominal disease with pain or discomfort in other regions must not be lost sight of—the pain in the region of the shoulder for instance associated with irritation of the diaphragm from inflammatory lesions of the various structures in relation to its under surface. The diaphragm is supplied by the third and fourth cervical segments, especially the fourth. This shoulder pain occurs in very many conditions such as hepatic abscess, perforated ulcers, subphrenic abscess, cholecystitis, splenic infarction, pancreatitis, &c., and whether the right or left shoulder is affected depends on which wing of the diaphragm is involved. Zachary Cope has established the diagnostic significance of the exact locality of this referred pain and he summarises the results of his observations as follows:—

> "Irritation of the anterior part of the diaphragm causes pain in the corresponding clavicular or supraclavicular regions. Irritation of the posterior part of the diaphragm causes pain in the supraspinous fossa of the same side: irritation of the top of the phrenic dome causes pain in the corresponding acromioclavicular regions; and finally, pain felt over both shoulders indicates a medium diaphragmatic irritation."

He gives a series of cases which amply justify his conclusions and though irritation of the upper surface of the diaphragm from diaphragmatic pleurisy or pericarditis may equally give rise to shoulder pain yet this pain in association with other symptoms is of very great value in the diagnosis and localisation of acute abdominal disease. It is important too to note that the abdominal symptoms may be latent or amount at most to discomfort and the shoulder pain may be the chief indication of the abdominal trouble. This is seen best of all perhaps in the case of hepatic abscess in which shoulder pain is almost a classical symptom. In a case of subphrenic abscess in the left anterior region the pain was over the clavicle. Liver abscesses usually involve the posterior and upper part of the right lobe of the liver and then give rise to pain in the right supraspinous region. With regard to gall-stones Cope maintains that shoulder pain is confined to those cases with accompanying local peritonitis. With perforation of a duodenal ulcer the region of the right crus is irritated and pain is felt in the right supraspinous fossa.

Conversely we must not overlook the pains and discomforts experienced within the abdomen but originating in extra-abdominal disease, such as the simulation of acute abdominal disease by acute pulmonary and cardiac affections, or the gastric crises of locomotor ataxy, though in all these cases the symptoms are apt to be too severe to come under the heading of discomfort.

Time does not allow of any discussion of the influence of neuroses in the production of discomfort.

NEW NURSES' HOMES.—
recently opened a nurses'
the adaptation of a large
Chichester and District N
has opened at Saltley
the Saltley and Washw
Mr. Robert Whitehead,
of Devonshire Hospi
Nurses' Home there.

VITAMIN B IN ANÆMIA.

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The recognition of the similarity of certain symptoms and signs (especially referable to the gastro-intestinal, central nervous, and hæmopoietic systems) of pernicious anæmia to those of pellagra, sprue, and beri-beri—diseases due to or associated with a faulty diet—has for many years suggested the possibility that pernicious anæmia belongs to the group of deficiency diseases. Castle has shown that in pernicious anæmia the deficiency lies in a failure of the stomach to secrete some substance (intrinsic factor) which acts on beef protein (extrinsic factor) with a resulting production of the specific anti-anæmic factor. This favours the view of placing pernicious anæmia among the deficiency diseases, using this term in a broad sense as opposed to its usual limited application to vitamin deficiencies. The nature of Castle's[1] intrinsic factor still remains unsettled. It does not correspond to any of the recognised ferments of the gastro-intestinal tract, nor to any known hormones. It is unlikely that it belongs to the group of substances known as vitamins, for although a deficiency of these substances, both in human beings and in experimental animals, can produce a severe anæmia which can in turn be cured by supplying the deficiency, the anæmia is not of the megaloblastic type. Moreover, pernicious anæmia may develop in persons on diet completely adequate in regard to vitamin contents, and the feeding of diets rich in vitamins to such patients have generally met with failure. That the anti-anæmic factor contained in liver is extremely unlikely to have any connexion with vitamins A, D, or E is certain, since the active principle in liver is water-soluble, while vitamins A, D, and E are fat-soluble. Similarly vitamin C can be disregarded in this connexion, since it is heat-labile, while the anti-anæmic factor is moderately heat-resistant. Vitamin B is, however, at least worthy of serious consideration, for the following reasons :—

(1) It is water-soluble and relatively resistant to heat.

(2) Liver and kidney are known to be extremely rich in this vitamin.

(3) A deficiency of vitamin B leads to atrophy and congestion of the intestinal wall, with accompanying disturbance of secretion, loss of appetite, and impairment of assimilation; similar gastro-intestinal changes occur in pernicious anæmia.

(4) Vitamin B is believed to be essential to the metabolism of cell nuclei, and is therefore necessary to all cells, including the bone-marrow cells.

(5) Miss Esmé Gilroy[2] has shown from feeding experiments on rats that if liver extract is added to a diet deficient in vitamin B, satisfactory growth results, while the control animals fail to show a similar improvement. It appears, therefore, that liver extract, if not actually vitamin B, produced similar results when fed to young animals.

(6) Miss Lucy Wills[3] showed that "tropical macrocytic anæmia" occurring in Indian women responded as promptly and effectively to vitamin B as to liver extract therapy.

Recently Dakin, West, and Howe[4] claim to have isolated and identified the specific substance contained in liver. They state that it is a dipeptide of β-hydroxyglutamic acid and γ-hydroxyproline. If this is confirmed the chances that the factor is any known vitamin are extremely improbable.

THE PRESENT INVESTIGATION.

The uncertainty of the relationship of vitamin B to the anti-anæmic factor contained in liver appears at least to warrant an investigation of the problem by clinical trial. Unfortunately there is to-day no satisfactory method of estimating the potency of any therapeutic remedy for pernicious anæmia, except by trial on the human subject suffering from the disease.

The value of liver in the treatment of anæmia is so well known both to the profession and to the laity that it is becoming increasingly difficult everywhere to obtain suitable cases on which to make such tests. Moreover, the limited number of cases which are admitted to hospital are not all suitable for such an investigation. Some of them have been taking liver at home, often sporadically or in inadequate quantities, but still enough to have placed them in a state of semi-remission with blood counts around 3,000,000. The dramatic effects which result from liver therapy during the severe relapse stage, with counts around 1,000,000 red blood corpuscles, do not occur in such cases, since the reticulocyte rise produced bears an indirect ratio to the blood count at the beginning of treatment, and in consequence in the remission stage will be very small indeed. On the other hand, cases are admitted with such a degree of anæmia as to be an immediate danger to life, and trial of unknown remedies can never be justified in these circumstances. Five out of the last six cases admitted to my wards during the past three months were of this type. Remedies which are known to be efficacious must be immediately employed, and the response which follows makes it sometimes very difficult to estimate the value of subsequent treatment. No two cases, however similar their condition appears to be, necessarily respond to the same degree. This is well exemplified in two cases admitted to my ward at the same time, and which it was hoped would be suitable for the trial of vitamin B therapy. Both the patients were women in the severe relapse stage of pernicious anæmia, with blood counts just under 1,000,000. Both were so seriously ill that it would have been dangerous and unjustifiable to delay specific treatment with known potent preparations. One week after treatment started both cases showed a well-marked reticulocyte response, whereupon treatment was discontinued as the patients were believed to be out of danger. Whereas one case continued to improve daily, both clinically and hæmatologically, so that in three weeks the red cell count reached 3·5 million, the other case started a relapse on the tenth day following the cessation of treatment, and became so extremely ill that blood transfusion was seriously considered, and several weeks of specific therapy were required before a second response was obtained. Eventually both patients made a satisfactory recovery.

The difficulties and dangers of drawing conclusions from subsequent forms of treatment in cases of pernicious anæmia which have previously had the specific anti-anæmic factor administered, unless great care and judgment are exercised, are well exemplified in these two cases and need no further emphasis.

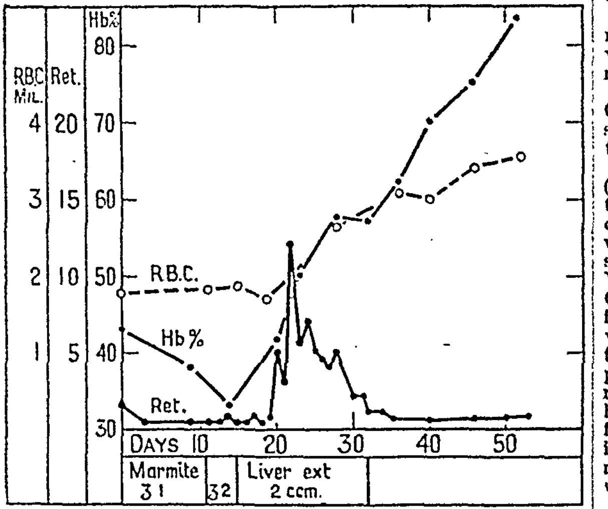
CASE REPORTS.

Case 1.—Mrs. A., aged 60, complained of extreme weakness and breathlessness for more than a year. She had travelled by motor-car 200 miles with the following blood count :—

Red cells, 720,000; white cells, 4500; hæmoglobin, 18 per cent.; colour-index, 1·3; reticulocytes, 1·5 per cent.

Examination revealed glossitis, achlorhydria, positive indirect van den Bergh reaction, and typical blood picture. There was no doubt she was a case of pernicious anæmia in a very severe relapse. Her blood was typed, and a donor held in readiness while treatment with liver extract (B.D.H.) three tubes daily was started. In just over a week a reticulocyte crisis of 28 per cent. was produced, and all treatment was then stopped. The blood count, however, continued to rise, and in three weeks the red cells were 3,230,000, and the hæmoglobin 65 per cent. The count remained stationary for 12 days, and then the patient began to complain of pain in her tongue, which was red and fiery. Vitamin B therapy was started, marmite 1 drachm three times a day, later increased to 2 drachms three times a day. This appeared to have a definitely beneficial result, the inflammation of the tongue subsided, the patient felt better, and her red cells rose to 3,770,000 and hæmoglobin to 85 per cent. after three weeks' treatment. The patient left hospital, and her doctor was asked to keep her on marmite to see if it maintained her condition.

FIG. 1.



The figure illustrates the failure of vitamin B therapy and the successful results of intramuscular liver extract therapy in a case of pernicious anæmia. 2 c.cm. of the extract were injected daily for seventeen days.

Months may elapse before evidence will be forthcoming as to the value of vitamin B in maintaining a satisfactory blood level. It is hoped to place a series of cases in the remission stage on this treatment, as evidence from an individual case of a disease which varies so greatly in the duration of its remission would be of little value.

While Case 1 appeared to warrant the conclusion that vitamin B therapy was of value in the treatment of pernicious anæmia, subsequent cases, as reported below, failed to confirm this first impression.

CASE 2.—A man, aged 70. Complaint: weakness, loss of appetite, and general debility. Duration three years, but getting more pronounced recently. Glossitis, paræsthesiæ of hands and feet, achylia, positive indirect van den Bergh reaction present. Price Jones curve showed a shift to the right. The blood count was:—

Red cells, 1,840,000; white cells, 3438; Hb, 43 per cent.; C.I., 1·19; retic., 1·5 per cent.

The blood picture was typical of pernicious anæmia, and the case appeared to be an ideal one for assaying vitamin B therapy, since the clinical state of the patient was satisfactory. Fourteen days' treatment with marmite, first one teaspoonful, and later two teaspoonfuls three times a day, failed to produce any change in his blood. The opportunity was taken of testing the efficacy of a liver extract preparation for intramuscular injection, supplied through the courtesy of Prof. Gänsslen,[5] and accordingly one ampoule containing 2 c.cm. was injected daily. On the fifth day the reticulocyte rise commenced, reaching 12 per cent. on the seventh day, and remaining above normal for ten days. The red cell count reached 3,090,000, with hæmoglobin 52 per cent., on the twentieth day. A total of 17 daily injections was given, and then all treatment was stopped. The blood count is still rising, and on Oct. 28th was:—

Red cells, 3,600,000; white cells, 5300; Hb, 82 per cent.; C.I., 1·10.

Case 2 demonstrates clearly the inefficacy of vitamin B and the efficacy of intramuscular injections of liver extract in a case of pernicious anæmia (see Fig. 1).

CASE 3.—A man, aged 62. Complaint: increasing weakness, breathlessness, loss of appetite, and lately marked vomiting. Achlorhydria, positive indirect van den Bergh reaction. The blood count on April 17th, 1931, was:—

Red cells, 1,037,500; white cells, 3125; Hb, 28 per cent.; C.I., 1·4; retic., 1·5 per cent. The Price Jones curve showed marked shift to the right. Blood picture characteristic.

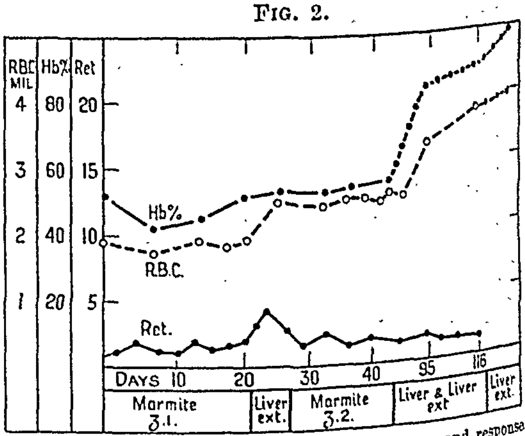
The patient was placed on small doses of liver extract (B.D.H.), and as vomiting improved the dose was increased to two tubes daily. In ten days the count reached: red cells, 2,380,000, with hæmoglobin 48 per cent. Treatment was stopped for 14 days; at that date the count was stationary, red cells 2,830,000, and hæmoglobin 60 per cent. Vitamin B, a special preparation supplied by Dr. Esmé Gilroy, was then given, two teaspoonfuls three times a day for 12 days. The blood count remained unchanged, so ventriculin was started, and in six days the count rose to 3,150,000 red cells, and hæmoglobin 68 per cent. The patient left hospital taking liver and liver extract, and returned on July 18th with the red cells 3,500,000, and hæmoglobin 80 per cent. This was not considered satisfactory, and iron and ammonium citrate grs. 90 was given in addition to the liver and liver extract. The patient returned to see me on Sept. 18th, when the blood count was red cells 5,200,000, and hæmoglobin 95 per cent.

The case shows that during the 12-day period when the patient was taking vitamin B no progress was made. The value of iron in a small percentage of cases of pernicious anæmia was clearly demonstrated by Beebe and Lewis.[6]

CASE 4.—A man, aged 61, complained of loss of appetite and weight, weakness and pain in the stomach, and occasional attacks of sore tongue. He had achlorhydria and a positive indirect van den Bergh reaction. The blood count on June 18th, 1931, was:—

Red cells, 1,800,000; white cells, 3750; Hb, 50 per cent.; C.I., 1·3; retic., 1 per cent. Marked shift to the right in Price Jones curve; marked megalocytosis, moderate anisocytosis.

FIG. 2.



Showing failure of prolonged vitamin B therapy and response to liver and liver extract in a case of pernicious anæmia.

Marmite, one teaspoonful three times a day was given for three weeks, with no change whatsoever in the blood count. Liver extract, three tubes daily, was given for four days. The blood count rose to red cells 2,620,000, with hæmoglobin 50 per cent. The patient was given marmite again in bigger doses—viz., two teaspoonfuls three times a day for two weeks. The blood count remained practically stationary at 2,600,000, hæmoglobin 57 per cent. The patient returned home taking liver and liver extract and reported on Sept. 22nd, greatly improved in appearance and in health. His blood count was: red cells, 3,100,000; hæmoglobin, 80 per cent. His progress at home was not considered to be rapid enough, so he was readmitted to my ward on Oct. 15th (when his count was: red cells, 3,360,000; white cells, 5000; Hb, 80 per cent.; C.I., 1·19) for intramuscular liver extract therapy. His red cell count is now over 4 million.

The conclusions to be drawn for Case 4 were that intensive and long-continued vitamin B therapy (five weeks) failed to produce any material alteration in the blood count. It should be pointed out, however, that this patient is a somewhat deformed, wizened man, with arterio-sclerosis, who is exactly the type which Beebe and Lewis show are extremely resistant to even intensive liver therapy (Fig. 2).

VITAMIN B IN SIMPLE ACHLORHYDRIC ANÆMIA.

Except Case 1 the above cases of pernicious anæmia showed no benefits from vitamin B therapy. It was decided to try its effect on cases of hypochromic anæmia. The most satisfactory type of cases appeared to be the so-called simple achlorhydric form of hypochromic anæmia, in which the effects of treatment can be carefully controlled, as no natural remissions are likely to occur and complicate matters. Several cases have been treated, but Case 5 is a particularly good example.

CASE 5.—Mrs. C., aged 47. Complaint: easily tired and breathless on exertion for several years. Tongue pale and glazed. Spleen just palpable. Test-meal: No free HCl, much mucus, and many pus cells.

Blood count: red cells, 2,110,000; white cells, 3750; Hb, 22 per cent.; C.I., 0·5. Marked anisocytosis and poikilocytosis, and well-developed central pallor. Price Jones curve, peak shifted slightly to the left.

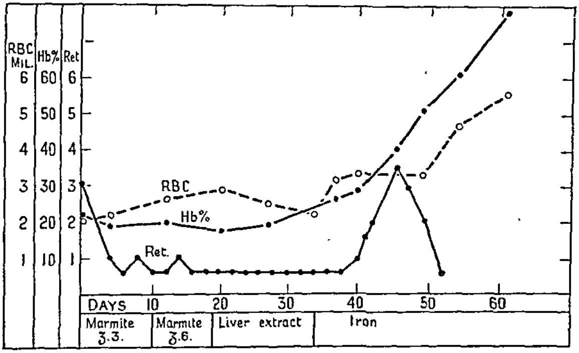
Marmite was given daily, first in teaspoonful doses thrice daily, and later in double this quantity daily for 18 days. The gastritis was treated with daily lavage through a stomach-tube with excellent results. The hæmoglobin remained stationary, and the red cell count rose to 2·5 million. This small rise may well be the result of the improvement of her gastric condition consequent on the lavage. Vitamin B having failed to produce any noteworthy improvement, the patient was next placed on liver extract, with the express purpose of demonstrating the futility of this procedure in any form of anæmia except that resulting from a megaloblastic bone-marrow. Fourteen days' treatment with three tubes daily of liver extract (B.D.H.) found the Hb still stationary and the red cell count lower (2,200,000). The patient was next placed on iron and ammonium citrate, grs. 30, three times a day, with immediate improvement. Within a week the cheeks were rosy, appetite was improved, and breathlessness, weakness, and tachycardia notably reduced. The hæmoglobin content was nearly trebled in three weeks—i.e., a rise from 22 to 60 per cent.—while the red cells rose from 2·2 to 4·3 millions. In six weeks the hæmoglobin reached 80 per cent.

This case clearly demonstrates the failure of vitamin B and liver extract, and the efficacy of iron in the treatment of simple achlorhydric anæmia (Fig. 3).

DISCUSSION.

The evidence of these cases suggests that the anti-anæmic factor contained in liver is not vitamin B. It might be suggested that the dose of vitamin B administered was insufficient or the duration of treatment too short. With regard to the dose employed—namely, 3–6 teaspoonfuls of marmite daily—it is extremely difficult to get patients to take such large quantities because of the nausea and sickness produced. The vitamin contained in such quantities is enormous, and if a vitamin deficiency was the cause of the anæmia it should have rapidly improved when adequate amounts were supplied. If larger quantities of marmite are necessary in the treatment of pernicious anæmia it cannot be for the vitamin contained therein, but for the biological value of its amino-acids as building stores for the hæmoglobin molecules.

FIG. 3.



Case of simple achlorhydric anæmia demonstrating the failure of vitamin B and liver extract therapy. Immediate response was obtained when iron and ammonium citrate, grs. 30, t.i.d., was given.

With regard to the duration of treatment, if vitamin B is similar to the anti-anæmic factor, it should act rapidly, and signs of a reticulocyte rise should be evident within a few days.

The failure of vitamin B therapy in non-tropical macrocytic anæmia (pernicious anæmia) and its efficacy in the tropical macrocytic anæmia, as reported by Miss Wills, suggests that the two diseases are essentially different conditions. In the latter disease gastric secretion is normal and central nervous system changes are absent. The patients had been taking grossly deficient diets, and the condition was frequently complicated by various tropical diseases, such as malaria and hookworm disease, as well as by pregnancy. The fact that while in hospital these Indian women would be receiving adequate dietaries, and that vitamin B would have a profound effect in toning up the intestinal tract, promoting digestion and assimilation, and thus favourably influencing metabolism, probably explains the beneficial changes in the blood and blood-forming organs.

It is highly improbable that vitamin B and the anti-anæmic factor are in any way related, and it is justifiable to assume, therefore, that vitamin B therapy is doomed to failure in the acute relapse stage of pernicious anæmia. On the other hand, its power in improving the efficiency of the gastro-intestinal tract may possibly lead to its utilisation during the remission stage. It is only now being recognised that probably only a small proportion of the anti-anæmic factor given by the mouth is absorbed, since minute quantities administered by the intravenous and intramuscular routes produce far greater effects. By increasing absorption vitamin B therapy might play a part in reducing the maintenance dose of liver or liver extract which is required. The apparently beneficial results seen in Case 1 during the remission stage may possibly be explained on these grounds. This possible subsidiary effect of vitamin B is worthy of the further investigation which is at present being carried out.

SUMMARY.

A series of cases of primary and secondary anæmia have been treated with large doses of vitamin B. The evidence produced is definitely against vitamin B being the anti-anæmic factor contained in liver or liver extract. The possible value of vitamin B during the remission stage is discussed.

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TONSILLECTOMY, SCHICK IMMUNITY, AND DIPHTHERIA CARRIERS.

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BEFORE the active immunisation of Greenwich Hospital School (G.H.S.) in January and February, 1928, 841 of the resident boys (aged 11·5 to 15·5 years) had their throats examined for diphtheria bacilli on the same day as they were Schick tested. Among these boys were a group of 142, who had had their tonsils and adenoids removed after joining G.H.S. but before this investigation. The presence of this group provided an opportunity of examining the effect of tonsillectomy on the carrier-rate for diphtheria, and the development of Schick immunity. As a control group there were 113 boys who at the time of testing had tonsils, but who subsequently had them removed while still in G.H.S. Both groups were selected for surgical treatment by the same throat specialist. In addition, many boys, outside these two groups, had had their tonsils out before joining G.H.S., but the exact number is not known.

TONSILLECTOMY AND DIPHTHERIA CARRIER-RATES.

The following abbreviations are used for diphtheria bacilli: M.D. for organisms which are seen in the stained smears from the mixed cultures obtained from the swabs, and which resemble isolated and identified *Corynebacterium diphtheriæ* (C.D.); A.C.D., for avirulent C.D.; and T.C.D., for the toxigenic variety of C.D.

Table I. gives the incidence of carrier infection during the same period among the groups of boys described above. The table shows that the carrier-rate for M.D. was higher than the "expected" rate—i.e., the rate among the total residents—in those boys who were about to have their tonsils out, and lower than the expected rate in the boys who had already had their tonsils removed.

The last vertical column of figures in Table I. illustrates another phenomenon. At the time that these organisms were isolated, I had no idea which group of boys a specific culture came from. C.D. was successfully isolated from three-quarters of the primary cultures in which M.D. were seen, and which came from the group about to lose their tonsils; whereas, in the tonsillectomised group, C.D. was isolated from only a third of the primary cultures containing M.D. Now, other factors being equal, success in isolating a pure culture depends on the relative density of C.D. in the mixed culture. For example, if 30 per cent. of the organisms seen in a stained smear from a mixed culture appear to be M.D., success in getting out a pure culture of C.D. is practically certain; on the other hand, if only 1 or 2 per cent. of the bacteria look like M.D., the attempt to isolate C.D. is likely to fail. Therefore success or failure in obtaining pure cultures of C.D. is an index of the profuseness or sparsity of M.D. in the original mixed culture, and, in turn, probably an index of the "intensity" of infection in the carrier. If this be true, then at G.H.S. the average intensity of C.D. infection was less in those boys who had had their tonsils out.

TABLE I.—*Tonsillectomy (at G.H.S.) and Carrier Infection.*

Condition of tonsils. Groups swabbed at same time.	Number in group.	M.D. cultures.			Per cent. group. "M.D. positive."	"Most probable" rate per cent.		Per cent. of M.D. not isolated.
		T.C.D.	A.C.D.	Not isolated.		T.C.D.	A.C.D.	
"Removed" ..	142	3	2	0	10 ± 1·7	6·0	4·0	64 ± 8·6
"About to be"	113	3	14	5	20 ± 2·4	3·5	16·5	23 ± 5·9
Total op. cases	255	6	16	14	14 ± 1·1	3·8	10·2	39 ± 4·5
Total residents	841	18	71	44	16 ± 0·8	3·3	12·7	33 ± 2·7

"Most probable" rates estimated from the total M.D. rate and ratio of A.C.D. to T.C.D. in isolated cultures.

It has been suggested that a carrier is only a dangerous source of infection to others at those times when the primary cultures from his throat or nose yield a profuse growth of M.D. Such an assumption would mean that, besides being more scarce, diphtheria carriers without tonsils are less infectious. In view of the success which often attends the operative treatment of the "chronic" carrier, the results of tonsillectomy on the total M.D. carrier-rate at G.H.S. were rather disappointing. But the "chronic" carrier often has definite abnormalities of the throat or nose, whereas the transitory "contact" carrier, which formed at least 90 per cent. of the M.D. infections at G.H.S., is no more likely to have an abnormal throat than anyone else.

The results of tonsillectomy become still less encouraging when the data in Table I. are examined in detail; although the frequencies and numbers are too small to have much significance, yet, as they stand, virulent latent infection with T.C.D. was more common in the tonsillectomised than in the control group, and therefore the lower total M.D. carrier-rate was only due to a lower incidence of avirulent infections (A.C.D.). Doull and Fales[1] also failed to find any significant difference in the carrier-rate for virulent bacilli between groups with "normal" and "removed" tonsils, though the rate was 1·4 times greater among children with "diseased" tonsils. (The A.C.D. rates were not recorded.)

TONSILLECTOMY AND SCHICK IMMUNITY.

Table II. gives the Schick reaction of the same two classes of boys—i.e., those who had been, and those who were about to be tonsillectomised in G.H.S. Because, as I have shown elsewhere,[2] the frequency of positive Schick reactions in groups of G.H.S. boys increased rapidly with their length of residence at the school—i.e., seniority—the two main groups were each divided into three sub-groups of differing seniority, as shown in Table II. It is seen that the boys about to be tonsillectomised included, absolutely and relatively, more than twice as many positive Schick reactors as the group who were without tonsils at the time of testing. This phenomenon cannot be attributed to a different seniority distribution in the two classes, because in the tonsillectomised sub-groups there was no "seniority gradient" in Schick immunity—each sub-group being 14 per cent. Schick susceptible. On the other hand, in the sub-groups *with tonsils*, susceptibility declined with seniority from 49 to 17 per cent.

These observations suggest that tonsillectomy in some way encourages the acquisition of diphtheria antitoxic immunity. This deduction was made indirectly by Schick testing, once only, two comparable groups of boys. The investigation was made early in 1928 and, though not published until now, is therefore an independent confirmation of Schick and Topper's [3] more direct demonstration of the same phenomenon by Schick testing the same group of children twice, before and after tonsillectomy. Of 100 children so tested who had positive reactions before operation, 82 were found to have negative Schick reactions six months later. As judged from the rate of natural immunisation in the locality, Schick and Topper state that the expected number to acquire Schick immunity should have been less than ten.

TABLE II.—*Tonsillectomy and Schick Immunity.*

Simultaneous Schick tests in 1928.	Year of entry.	Number tested.	Schick positive.	
			Number.	Percentage.
Boys with "*removed*" tonsils.	1925 1926 1927	69 57 16	10 8 2	14 14 14
Total	—	142	20	14 ±1·9
Boys about to lose tonsils.	1925 1926 1927	12 38 63	2 9 31	17 24 49
Total	—	113	42	37 ±2·7
Total tonsillectomised in G.H.S.	1925 1926 1927	81 95 79	12 17 33	15 18 42
Total	—	255	62	24 ±1·8

TONSILLECTOMY AND IMMUNISABILITY.

The *time and amount of diphtheria prophylactic* which is required to stimulate Schick immunity varies greatly in different individuals. The "immunisability" of a subject can be measured by the time taken, after a constant dose of diphtheria antigen, for his Schick reaction to become negative. At G.H.S., 219 Schick susceptibles were given two doses of a diphtheria prophylactic and retested one month and three months later. By this means they were classed as shown in Table III. according as their response to the prophylactic was "slow," "medium," or "rapid." The total original Schick susceptible group included the 62 positive Schick reactors (see Table II.) who had been, or who were about to be, tonsillectomised in G.H.S. Among the 20 Schick susceptible boys who had no tonsils, 12 were in the "rapid" group, and only one in the "slow." The expected numbers as estimated from the bottom line *in Table III.* were seven and five. Thus, though the numbers are small, they are consistent with the view that tonsillectomy had increased the *immunisability* of the few Schick susceptible subjects who had retained their positive reactions after operation.

TABLE III.—*Tonsillectomy and Immunisability.*

Schick positive groups with tonsils.	Number in group.	Immunity gained in—			Percentage group in "rapid" class.
		Less than 1 month "rapid."	2–3 months "medium."	More than 3 months "slow."	
A. "Removed" ..	20	12	7	1	60 ±7·5
B. "About to be"	42	16	17	9	38 ±5·0
A+B	62	28	24	10	45 ±4·2
Control total residents ..	219	76	92	51	33 ±2·1

TONSILLECTOMY AND NATURAL HERD-IMMUNITY.

There is no reasonable doubt that, *under certain conditions*, tonsillectomy is almost as effective a stimulus of Schick immunity as a course of diphtheria prophylactic. But it is more than doubtful if this observation should ever be used as an argument in favour of the indiscriminate removal of tonsils and adenoids; because, save in diphtheria and other local diseases of the tonsils, there is no statistical evidence that the removal of lymphoid tissue from the pharyngeal rings of a large fraction of the population has any effect in raising natural herd-immunity to bacterial infection as a whole. It is therefore advisable to discuss this subject briefly.

First, as regards the beneficial local effect, Collins's [4] statistics show that, in his material, the morbidity from diphtheria was trisected and the incidence of other sore-throats was halved in subjects without tonsils or adenoids. Bloomfield and Felty [5] report an epidemic of "sore-throat" among hospital nurses, in which the case-rate and the carrier-rate for hæmolytic streptococci were both about four times as great in the nurses who had tonsils as in those who had not. Secondly, considering the case against tonsillectomy, Collins in the same report shows that the attack-rate (corrected for age and sex) for five common children's diseases (measles, mumps, chicken-pox, whooping-cough, and scarlet fever), taken together, was roughly as 10 : 7 : 6 as the tonsils in the group were "removed," "defective," or "normal." In the case of scarlet fever the excess of morbidity in the "removed" group was not significant, which is consistent with the nature of the disease—a general infection with a local concentration on the tonsil. Some observations by Doull [6] also suggest that the incidence of scarlet fever is not influenced, one way or the other, by tonsillectomy From the frequency of tonsillectomised children in different age-groups in Baltimore, it was estimated that 25 cases of scarlet fever with removed tonsils should have been expected among a group of 103 cases and, as a matter of fact, 19 were found. A similar research as regards diphtheria only produced two cases instead of the 26 "expected."

It is well to emphasise that so far "incidence" only has been considered; and most physicians are convinced that the severity of symptoms in scarlet fever is less in the tonsillectomised. In this respect, if a "carrier" is considered as the mildest type of "case," there is little evidence that tonsillectomy has any effect on the *incidence* of "diphtheria," in spite of its amazing effect on the ills of T.C.D. infection.

Collins [4] found little difference in the incidence of "minor" respiratory infections, but in the "major" infections, such as pneumonia and bronchitis, the tonsillectomised groups again suffered most. Bradley[7] also failed to find that tonsillectomy had any effect in preventing or lessening the incidence of epidemic nasopharyngeal infections in schools, and considers "that until the loss of lymphoid tissue is made good, the operated cases are more susceptible to common catarrhs and more frequently attacked by complications" (including otitis media).

Finally, with regard to rheumatism, a condition for which tonsillectomy is so often prescribed, Campbell and Warner[8] could find no evidence that the liability to rheumatic syndromes was less after than before operation—rather the reverse. These few references are enough to show that, while the wholesale removal of tonsils and adenoids may diminish diseases more or less localised to the removed organs, this form of surgical interference probably increases the morbidity from most non-localised bacterial infection. Digby,[9] a professor of surgery, for the last 20 years has preached the doctrine that the tonsils, appendix, and subepithelial lymphoid tissue in general, are part of the natural defences of an animal against microbic invasion, and as such should not be excised without adequate reasons. This tissue, after all, is part of the reticulo-endothelial system—a system which more and more reveals itself as the organ, par excellence, concerned with natural immunity.

Although the extent to which tonsils and adenoids have been removed in recent years may have increased the amount of bacterial disease in the herd as a whole, yet there is no intention of suggesting that surgical treatment of the nose and throat may not be of inestimable benefit to the carefully selected individual. In recent years, however, it is highly probable that many more individuals are having their natural immunity damaged than are getting their resistance to microbic invasion increased by tonsillectomy. These remarks apply to infectious disease only; it is conceivable that the improved physique and mentality which sometimes follow tonsillectomy may outweigh any damage done to herd-immunity.

Finally, the two interim reports[10] of the Board of Education's Committee on Adenoids and Enlarged Tonsils support the view that when a defective child has enlarged tonsils the latter are not necessarily responsible for the child's defect; but, as often as not, both the defect and the lymphoid hyperplasia may be due to the same environmental or constitutional influence. The removal of lymphoid tissue cannot remove this influence, and may sometimes intensify rather than mollify the subnormality of the child.

TONSILLECTOMY AND LATENT IMMUNISATION.

I have yet to discover any observations to shake seriously my belief that diphtheria antitoxin in sufficient quantity to inhibit a Schick reaction can appear in the blood of an animal without previous stimulation by the specific antigen, diphtheria toxin. Under natural conditions this antigen is supplied by the toxigenic diphtheria bacilli in the environment. At first sight it would appear as if the rapid production of Schick immunity which, under certain conditions, follows tonsillectomy should shatter this "creed." But need it? There is no proof that tonsillectomy, *in the absence of subsequent contact with diphtheria bacilli,* can act as a "non-specific antigen" in the production of diphtheria antitoxin. In G.H.S. we know, and in Topper and Schick's[3] sample of New York children it is more than probable, that the tonsillectomised subjects were exposed to diphtheria bacilli a short time after their operations.

In favour of the view that tonsillectomy has no immunising effect in the absence of diphtheria bacilli is Doull's[11] inability to confirm Schick and Topper's observations. Doull's sample consisted of 248 adult American university students; about half had been tonsillectomised, but there was no significant difference in Schick immunity of the moiety with and without tonsils. This observation demonstrates that tonsillectomy is not necessarily followed by an increase in the rate of acquiring Schick immunity. In England the average university student suffers far less risk of exposure to diphtheria than the children who attend urban hospitals or G.H.S. For example, in the latter environment during the last 15 years there have been about 500 cases of diphtheria and a C.D. carrier-rate averaging 5 per cent., whereas in Dartmouth Naval College, during the last 10 years, there have only been two doubtful cases of diphtheria. I examined the swabs of 200 cadets, "contacts" of one of the Dartmouth cases, and failed to find a diphtheria bacillus. Further, the high percentage of susceptibles found in English university students (O'Brien[12] and his co-workers found that 64 per cent. of a sample of London medical students had positive Schick reactions) is in itself an indication that they rarely run the risk of infection with diphtheria bacilli. Therefore, if the conditions of American student life are similar to those in England, Doull's negative results are important evidence in favour of the hypothesis that the presence of diphtheria bacilli is an essential adjunct to the production of Schick immunity after tonsillectomy. In some unknown way removal of the pharyngeal lymphoid tissue intensifies the antigenic action of the diphtheria bacillus. As was seen above, the probability of latent infection with toxigenic bacilli was no smaller in the tonsillectomised than in others in G.H.S., even though the total C.D. carrier-rate was higher. Hence, immediately after operation, a Schick susceptible may well be more liable to infection by T.C.D. than the average, though, as his antitoxic immunity develops and increases, the ability of T.C.D. to establish infection diminishes. It is significant that Bradley (see above) found this the case with other bacterial infections in his schoolboys. Thus, the rapid development of Schick immunity which sometimes follows tonsillectomy may actually be caused by the injury of one of the natural immunity mechanisms, which the Schick susceptible (in contrast to the Schick immune who has acquired antitoxic immunity) uses to destroy or modify the toxigenicity or antigenicity of the diphtheria bacillus.

There still remains the awkward question of how tonsillectomised Schick susceptible children, immediately after operation—if they are more liable to unrecognised infection with T.C.D.—escape clinical diphtheria more often than those comparable positive Schick reactors with tonsils? I think the difficulty is not insuperable. Nearly every case of diphtheria starts in the tonsil, therefore diphtheria bacilli have a special affinity for, or ability to produce lesions in, the tonsil. Although the vast majority of T.C.D. attacks produce no characteristic signs in the throat, whether tonsils are absent or present, yet it seems common sense to believe that if a tonsil is present recognisable diphtheria is more likely to develop. This preference for the tonsils is not only confined to the living bacilli, but apparently extends to the excreted diphtheria exotoxin, as was dramatically indicated in the recent Mendelin disaster[13] where 48 children were inoculated with sterile diphtheria toxin in mistake for toxoid. Ten of the victims developed a typical diphtheritic false membrane in their throats, from which attempts to culture diphtheria bacilli failed. (Observations at G.H.S., which are at present unpublished, show that the total number of carrier infections and their frequency distribution among groups of varying degrees of Schick immunity would satisfy the requirements of the above hypotheses.)

SUMMARY.

In a semi-isolated community:—

1. The total carrier-rate for diphtheria bacilli, among boys who had been operated on for tonsils and adenoids, was half that in a control group.

2. There was, however, no significant difference in the carrier-rate for toxigenic diphtheria bacilli; tonsillectomy had apparently only lowered the incidence of avirulent infections.

3. The frequency of positive Schick reactions was twice as great in the control as in the tonsillectomised group.

4. The Schick susceptible sub-group, whose tonsils had been removed, were more easily immunised artificially than other Schick susceptible groups.

5. Evidence is brought forward in favour of the view that tonsillectomy does not, in itself, stimulate the production of diphtheria antitoxin, but in some way accelerates latent immunisation by the diphtheria bacilli of the environment.

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DIPHTHERIA IMMUNITY AND TONSILLECTOMY.

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FROM a study of the literature, B. Schick and A. Topper (1929)[1] were impressed by the fact that diphtheria is one of the few diseases whose incidence appears to be lessened after tonsillectomy, and they proceeded to study by means of the Schick test the nature of the protection (if any) produced by tonsillectomy. They Schick-tested 100 children before tonsillectomy and re-tested them six months later.

In their latest publication (1931)[1] they report 51 new cases, and state that their results relating to 151 children showed that: (1) all the children had a Schick-positive reaction before tonsillectomy; (2) 83 children were aged less than 6 years and 68 children were between 6 and 13 years; (3) on re-testing six months after tonsillectomy, 28 (18·5 per cent.) were still Schick-positive, and 124 children (81·5 per cent.) had become Schick-negative; (4) tonsillectomy appeared to favour the development of an immunity against diphtheria.

In addition, they noted that of 260 consecutive cases of tonsillectomy admitted to the general pædiatric service during several years, 44 children (17 per cent.) were Schick-positive, while 216 children (83 per cent.) were Schick-negative. They reviewed six factors which might have influenced the production of immunity, and appear to favour the view that as these children lived in congested districts they might have acquired immediately after tonsillectomy a mild infection with diphtheria which stimulated the production of diphtheria antitoxin. They lay emphasis on the importance of the over-population (congestion) of the district and contrast the results obtained by Geddie (vide infra) in a rural area. Reference is also made to the results of S. F. Dudley at Greenwich (private communication to Dr. Schick), who obtained similar results and further found that tonsillectomised children developed their immunity more rapidly than others.

Schick and Topper acknowledge that children living in over-populated areas are more likely to be Schick-negative than those from well-to-do homes. In spite of their results, they do not advocate indiscriminate tonsillectomy, but remain upholders of immunisation by toxin-antitoxin.

In a rural community of 20,000 inhabitants (Rochester, U.S.A.) where only 30 cases of diphtheria had occurred in five years, K. G. Geddie[2] (1930) investigated the effect of tonsillectomy on diphtheria immunity. He Schick-tested 883 children and found that, out of 96 children who had had tonsillectomy more than six months previously, 79·2 per cent. were Schick-positive as against an average of 86·4 per cent. positive in 411 children who had not had tonsillectomy. Further, out of 101 children who had had tonsillectomy and had been inoculated with T.A.M., 25·2 per cent. were positive compared with 23·3 per cent. positive out of 241 children who had been inoculated with T.A.M. but did not have tonsillectomy. Geddie concluded that tonsillectomy (in his area) had no effect on diphtheria immunity.

INVESTIGATION IN ILFORD.

As Schick and Topper have stressed the importance of the factors of density of population, social condition, and incidence of diphtheria as affecting any results found after tonsillectomy in children, it will be necessary for us to consider these factors as applied to our district before proceeding to record our research into the effect of tonsillectomy.

Ilford is a rapidly growing district, primarily residential, with a population at the 1931 Census of 131,046 inhabitants, with a density of population of 15·47 per acre. A large portion of the area is, however, not yet built upon. The incidence of diphtheria during the past five years was 1230 cases, an average of 246 cases annually. Our research has been conducted among the children of the eastern part of the town, which comprises mainly the London County Council housing estate. This estate in Ilford consists of 2450 houses, built 12·2 houses to the acre. It is essential to compare the results of the Schick tests of children of this eastern area with other districts, in order to arrive at a conclusion as to the type of individual (virginal or immune) from which our records are drawn.

Zingher[4] found a much higher percentage of positive Schick reactions (75 per cent.) among school-children from well-to-do homes as compared with those from poor homes where the chances of infection and development of immunity were greater. This agrees in principle with the results obtained in Aberdeen[5] where the following totals were obtained: number of children tested = 1488; Schick-positive—west-end schools = 78·5 per cent; middle-class = 62·5 per cent; and east-end schools = 31·2 per cent. These figures would justify the conclusion that (1) the child population of the Ilford eastern area was at the time of investigation highly susceptible, and (2) that our results will not be comparable with those obtained in New York.

TABLE I.

Schick test: Age table (Ilford, Eastern area).

Age (years).	Number tested.	Percentage Schick-positive.
3–5	80	86·2
6	107	82·2
7	133	86·4
8	152	82·2
9	158	81·6
10	85	75·3
11	39	69·2
12 and over	70	67·0
—	824	80·0

TABLE II.

Results of Schick Reactions in New York (Park and Zingher.)[2]

Age (years).	Number tested.	Percentage Schick-positive.
3–6	1,328	58·6
6–7	13,751	50·4
7–8	16,180	43·5
8–9	17,136	36·6
9–10	18,065	32·2
10–11	18,057	29·3
11–12	17,994	28·2
12–13	16,251	26·6

We have investigated the history of 682 children in Ilford as regards Schick reaction, previous attacks of diphtheria, family grouping, previous tonsillectomy (the term tonsillectomy used throughout this article implies that adenoidectomy in addition to tonsillectomy was carried out in each case so far as our information goes), and the effect of artificial immunisation. Of these 682 children, 190 children—i.e., 27·3 per cent.—had had previous tonsillectomy (these were operated upon at least six months before the Schick test); the results were:—

Schick-positive + previous tonsillectomy = 20·5 per cent.
Schick-negative + previous tonsillectomy = 6·8 per cent.

Of the 527 Schick-positive children, 27·3 per cent. had had previous tonsillectomy, and of the 155 Schick-negative children 29·6 per cent. had had previous tonsillectomy.

TABLE III.

Schick reaction.	492 children who had had no previous tonsillectomy.	190 children who had had previous tonsillectomy.
Positive.	383 (77·8 per cent.).	144 (75·8 per cent.). (*a*)
Negative.	109 (22·2 per cent.).	46 (24·2 per cent.). (*b*)

(*a*) Three of these children had suffered from diphtheria before tonsillectomy.
(*b*) Five of these children had suffered from diphtheria, of whom three had had tonsillectomy before the attack of diphtheria.

TABLE IV.

Results of re-test after immunisation with toxin-antitoxin.

Schick reaction.	366 children who had had no previous tonsillectomy.	137 children who had had previous tonsillectomy.
Positive	54 (14·7 per cent.).	19 (13·9 per cent.).
Negative.	312 (85·3 per cent.).	118 (86·1 per cent.).

Tables III. and IV. demonstrate that: (1) the proportion of children who were Schick-positive is almost the same; (2) after immunisation the proportion of Schick-positive reactors was approximately the same in both groups.

In Table V. the children who had had previous tonsillectomy are analysed by age. It is seen that the number of Schick-positive children who had had previous tonsillectomy was never less than the number of Schick-negative children.

TABLE V.

Age.	Tonsillectomy.	Schick-positive.		Schick-negative.	
	Number.	Number.	Per cent.	Number.	Per cent.
5	10	8	80·0	2	20·0
6	28	20	71·5	8	23·5
7	31	27	77·1	4	12·9
8	34	29	75·6	5	11·4
9	46	34	74·0	12	26·0
10–14	41	26	63·4	15	26·6
Total	190	144	75·8	46	24·2

The effect of artificial immunisation with T.A.M. on the Schick reaction in those children who had had previous tonsillectomy and were still Schick-positive on re-test six months later was that 13·9 per cent. were Schick-positive, thus requiring a further course of inoculations; this can be compared with 14·7 per cent. of children who had had no previous tonsillectomy. Therefore the immunity mechanism (antitoxin-producing capacity) was the same in both groups of children and had not been altered by the operation of tonsillectomy.

The relationship between tonsillectomy and diphtheria immunity was considered in connexion with family groups of children. The Ilford records show that 79 family groups of children (varying from two to five children per family) had been investigated, with the following results:—

(*a*) Family groups where all members had had previous tonsillectomy and all were Schick-positive 16
(*b*) Family groups where some members had had previous tonsillectomy and all were Schick-positive 35
(*c*) Family groups where all members had had previous tonsillectomy and all were Schick-negative 1
(*d*) Family groups where some members had had previous tonsillectomy and all were Schick-negative 7
(*e*) Family groups where all members had had previous tonsillectomy and some were Schick-positive and some were Schick-negative 3
(*f*) Family groups where some members had had previous tonsillectomy and some were Schick-positive and some were Schick-negative 17

These figures demonstrate that there were more family groups with Schick-positive members after tonsillectomy than Schick-negative ones—i.e., tonsillectomy had not produced any change in the Schick reaction.

SUMMARY.

An investigation was made in Ilford of 682 children who had been Schick-tested in relation to the effect of previous tonsillectomy on diphtheria immunity; 27·6 per cent. (190 children) had had previous tonsillectomy. The relationship of the following factors to the Schick test and previous tonsillectomy was reviewed: age; proportion of children Schick-positive and Schick-negative; artificial immunisation; family grouping.

The results of this inquiry justify the conclusion that previous tonsillectomy has no influence on the production of immunity to diphtheria in children living in a residential non-rural, non-congested area.

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TREATMENT OF VESICAL PAPILLOMATA

OF MEDIUM OR LARGE SIZE.

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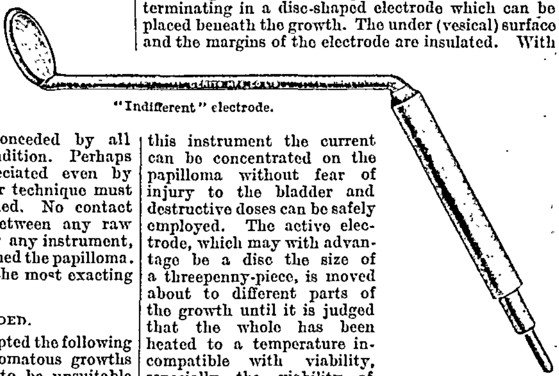
For papillomata below a certain size perurethral cystoscopic diathermy is the accepted method of treatment. Above that size several factors intervene which may lead one to reject cystoscopic methods. Amongst these may be mentioned the increased number of sessions required to destroy a large neoplasm and the greater difficulty experienced in manipulating the cystoscope as the tumour encroaches further and further on the vesical cavity, rendering the growth increasingly inaccessible. Moreover it must be recalled that all these tumours are to be regarded as potentially malignant and that, *cœteris paribus*, larger ones are more open to suspicion than smaller ones. At a given stage therefore most surgeons elect open operative methods, though the point at which the transition is made will differ with different surgeons and with the particular features of the individual growth.

Disadvantages of the Suprapubic Route.—The suprapubic route carries with it definite disadvantages and dangers. The period required for wound healing is an obvious drawback to open operation and one which weighs with the patient himself. But the main disadvantage lies in the risk that papillomatous cells may be implanted in the open cellular tissues of the wound. That this is a real danger will be conceded by all who have experienced the condition. Perhaps however it is insufficiently appreciated even by surgeons themselves how strict their technique must be if implantation is to be avoided. No contact must be tolerated at any time between any raw surface and the papilloma itself, or any instrument, glove, or other article which has touched the papilloma. The ritual is as rigorous as that of the most exacting surgical asepsis.



"Indifferent" electrode.

TECHNIQUE RECOMMENDED.

In my own practice I have now adopted the following technique for that group of papillomatous growths which I deem, on the one hand, to be unsuitable for perurethral diathermy, and which, on the other hand, do not call for partial cystectomy. After the usual suprapubic approach, the bladder is exposed and particular care is exercised to ensure that the peritoneum is fully withdrawn from its apex in preparation for a free incision into the bladder cavity. That organ is now elevated by tenacula and a small incision is at first made in its apex, preferably by means of an endothermy knife. Through this small opening the bladder lotion (Ag.NO$_3$. 1 in 500) is completely withdrawn by suction and with care it is usually possible to prevent any of the intravesical fluid from soiling the wound. The incision is now extended until free access is available and a good view of the growth is obtained. A steep Trendelenburg position is adopted. The wound, including the bladder margins, is protected with tetras soaked in silver nitrate (1 in 1000) and self-retaining bladder retractors are placed within the bladder itself. No swabbing is allowed within the vesical cavity, any urine, blood, or clot being removed by the pump. The wound margins are continuously elevated to prevent them touching the growth. Any instrument which touches the growth is resterilised. If it is necessary to touch the tumour with the gloved hand this is carefully cleansed in suitable solution. Ordinary cutting instruments or instruments to hold the growth, such as dissecting forceps or tenacula, are entirely discarded for use on the growth or within the bladder as by them papillomatous cells are inevitably disseminated.

As soon as the papilloma is fully exposed it is submitted to severe treatment by diathermy, the principal object being to destroy its vitality, still having in mind the dangers of implantation during the subsequent stages of the operation. If the bombardment of a large growth by diathermy is to be effective it should be prolonged and heavy. In the case of a pedicled papilloma it carries with it a definite risk of injury to uninvolved areas of the subjacent bladder wall on which the papilloma lies and through which the current must flow as it passes to the indifferent electrode. There are many cases in which the healthy bladder wall has shared in the overheating and so has been injured by diathermy applied through a suprapubic wound. With the object of averting this risk I have had an "indifferent" electrode made for use within the bladder (see Figure). It consists of a suitably shaped handle of insulating material carrying the wire connexions and terminating in a disc-shaped electrode which can be placed beneath the growth. The under (vesical) surface and the margins of the electrode are insulated. With this instrument the current can be concentrated on the papilloma without fear of injury to the bladder and destructive doses can be safely employed. The active electrode, which may with advantage be a disc the size of a threepenny-piece, is moved about to different parts of the growth until it is judged that the whole has been heated to a temperature incompatible with viability, especially the viability of any small portion which might inadvertently escape into the open wound. It is then my custom to switch over to the endothermy current and with a wire loop to skim off successive slices of the papilloma until nothing but a short stump of pedicle remains. (A return is made to the sacral "indifferent" electrode prior to the final stages.) With the diathermy current this stump is now destroyed together with the immediately subjacent and adjacent bladder wall.

The procedure above outlined is admirable for large pedicled growths. It may also be modified to suit papillomatous growths which are subsessile or sessile. The former may be burned with diathermy using the intravesical indifferent electrode exactly as in the pedicled class. The subsessile types show greater malignancy than the pedicled ones and their bases therefore call for additional treatment either in the form of radium or excision.

Sessile growths are not suitable for the intravesical electrode, but may nevertheless be submitted to the destructive action of the diathermic current and their intravesical prominence may then be shaved off with the endothermy loop until it is reduced to the level of the bladder wall. This greatly facilitates the effective implantation of radium. In those cases where it has been decided to treat a growth by partial cystectomy the preliminary heating of its structure by diathermy is invaluable in the prophylaxis against wound implantation, whilst with the removal of the projection some of the difficulty of the operation itself disappears.

SUMMARY.

In this short communication it is desired: (1) To emphasise the extreme importance of guarding wound edges from contamination with papillomatous cells. (2) To reaffirm the unsuitability of ordinary cutting or dissecting instruments for use on these growths. (3) To introduce an intravesical "indifferent" electrode, designed to prevent burns of the bladder wall and to obtain concentration of the fire solely on the papilloma itself. (4) To indicate the advantages of devitalising the growth by diathermy prior to excising its bulk by endothermy. When the intravesical prominence has gone, the characters of the neoplasm dictate the treatment which shall be selected for its site of origin. Three alternatives present themselves in local diathermy, implantation of radium, and excision.

AMŒBIASIS IN THE TEMPERATE ZONE.

REMARKS ON SEVEN CASES.

BY IAN MACDONALD, M.D. EDIN.,
HUELVA, SPAIN.

IMPORTANT landmarks in our knowledge of this disease are the isolation of the *Entamœba histolytica* by Lösch in 1873, the discovery of emetine by Rogers in 1912, and in the last decade the recognition of the surprising polymorphism of the entamœba. The ravages and camouflage of amœbiasis are banalities to the expert in tropical medicine, to the surgeon with experience of the East and to practitioners specially interested in the subject, but the malady can no longer be considered only a tropical one. "Since the Great War," Cope[1] says "latent subacute and chronic cases of amœbiasis are now distributed among the temperate as well as tropical parts of the world." In the preface of his useful book Connor[2] states: "It is now well known that many conditions formerly thought to be essentially tropical in nature occur in Europe and other temperate or cold countries. Amœbiasis is an example of this."

Continental clinicians[3] have also called attention to the increasing frequency of the disease in temperate zones. In one of the general hospitals of Paris 103 cases of amœbiasis were treated during the last three years.[4] Sir Leonard Rogers[5] has recently pointed out that indigenous cases of amœbiasis occur in Great Britain and other countries in the temperate zone, and he insists on the need for teaching the subject in the medical schools. But some textbooks of medicine continue to describe the disease as tropical, labelling it "amœbic dysentery" and persistently ignoring the modern definition: "amœbiasis is a term employed to indicate an infection with a protozoon *E. histolytica*. When the activities of the parasite are confined solely to the intestinal canal it produces 'amœbic dysentery,' a disease insidious in its onset, chronic in its course and with a marked tendency to relapse" (Manson-Bahr[6]).

The diagnosis of amœbiasis may be said to increase in difficulty the more remote its localisation from the point of inoculation in the large intestine. While acute amœbic dysentery may usually be rapidly recognised "the diarrhœa of the chronic case is liable to be mistaken for tuberculous and other forms, greatly to the detriment of the patient" (Rogers). The diagnosis may be still more uncertain, because in some cases of amœbiasis even slight diarrhœa may be altogether absent. To base the diagnosis, therefore, on a history of dysentery and not to find it is one of the surest ways of making a diagnostic error. In a careful analysis of 150 cases of intestinal amœbiasis Manson-Bahr and Tait[6] point out that there are certain bizarre types in which constipation and flatulence constitute the outstanding features, others in which there is a chronic diarrhœa, others again in which the symptoms appear to point to the gall-bladder, stomach, duodenum, and appendix. A study of this paper shows that in intestinal amœbiasis symptoms may vary from mild flatulent dyspepsia to the most severe syndrome of duodenal ulcer with profuse bleeding. Rachet[7] has also recently described the extraordinary variety of symptoms in intestinal amœbiasis, and the confusion which may arise between it and cancerous growths has been pointed out by various observers.

The pitfalls which await the surgeon and the peril for the patient of the unnecessary operation have been fully insisted on by Rogers, Cope, and Connor. They stress the need of an examination of the fæces before operation in abdominal cases, except the most fulminating, if there is the remotest possibility of the infection in patients who have resided where the disease is endemic. Even if the laboratory report is negative, nothing is lost by a trial of emetine for "the symptoms begin to abate after the administration of two or three doses" (Cope).

The physician's diagnostic errors, if less evident, are equally serious. Pulmonary amœbiasis can no longer be considered rare, for many cases have now been reported. In the lung, as in the intestine, lesions and symptoms may be slight or severe: a rebellious bronchitis, an atypical broncho-pneumonia or an abscess, secondary to hepatic abscess but sometimes the result of a primary graft of the parasite on the lung. The gravity of amœbiasis here is great, for its mimicry of common respiratory diseases is remarkable, and its termination often fatal if it is untreated by emetine. Manson-Bahr[8] has admirably described primary pulmonary amœbiasis: its fugitive, atypical, right-sided broncho-pneumonia; its profuse expectoration, sometimes blood-stained; the intermittent pyrexia and violent rigors which help to differentiate it from other respiratory diseases. He considers skiagrams of little value in diagnosis, but Dopter[9] and others attach importance to homogeneous basal shadows and complete clarity of the apices. A critical examination of the cases reported by other observers[10] shows that in subacute and chronic pulmonary lesions when fever persists, when clubbing of the fingers is present, and when abundant expectoration becomes blood-tinged though the sputum is negative for tubercle bacilli, the erroneous diagnosis of tuberculosis "without bacilli" is difficult to avoid. But repeated examination of the sputum and inoculations are negative, vaccines are valueless, pneumothorax and phrenicectomy give no result. The sputum, always profuse, is not nummular nor fœtid, nor chocolate-coloured in the absence of abscess. It is curiously thick, stringy and viscid, and sometimes may be finely streaked with blood. The cough is persistent and hacking and resists medication. These cases, with basal dullness, bronchial breathing, and large rhonchi, are easily labelled unresolved pneumonia, fibrosis, bronchiectasis, or chronic tuberculosis. If abscess supervenes the copious sputum may then become chocolate-coloured or blood-stained. The incidence of amœbic lung abscess is a matter for the expert. Lautmann[11] in his thesis gives a résumé of six cases, none of them secondary to hepatic abscess. It is probable that it occurs more often that has been supposed, and in any discussion on pulmonary suppuration it seems curious that no reference should be made to it.[12] Dopter considers response to emetine undeniable proof of the protozoal nature of pulmonary amœbiasis. But recent observations show that apparently other types of pulmonary suppuration may be benefited and in some cases cured by emetine.[13]

In the absence of a history of dysentery, broncho-pulmonary amœbiasis may be difficult to diagnose. But when clinical observation is unsupported by laboratory tests; when in supposed tuberculosis bacilli are persistently absent, especially if the lesions are basal, the diagnostic trial of emetine is imperative. The possible rôle of this protozoon in the lung must not be forgotten when diagnosis oscillates between fibroid conditions, bronchial spirochætosis, hydatid cyst and cancer, especially in patients who at any time have resided where the disease is endemic.

Case Reports.

Case 1, a military man, aged 39, was admitted suffering from acute pain in the right hypochondrium and right side down to the iliac fossa, with irregular fever, which had reached 103° F., accompanied by sweating and chills. Pain had been so severe that morphia had been necessary night and morning for a week. He had had one previous attack of dysentery 18 years before in Morocco. He had suffered in ten years from three similar attacks of pain, which had been diagnosed as biliary lithiasis. During the last eight months the attacks had been more frequent, but in all the intervals the patient had been quite well. He was a thin, sallow-looking man with a subicteric tint. Palpation elicited great pain down the right side as far as McBurney's point. Palpation for abscess laterally and posteriorly between the ribs was quite negative. The patient insisted on the severity of his subcostal and right-sided pain. Percussion of the liver seemed to show enlargement, but even light percussion was extremely painful and the right rectus muscle was continuously contracted.

A diagnosis was made of cholecystitis and appendicitis. At the operation no hepatic abscess was found, but a much dilated, thin-walled gall-bladder without calculi. Cholecystostomy and appendicectomy was performed. On the third day slimy pus with necrotic material mixed with small blood-clots was evacuated by the tube. Though a laboratory report was negative for amœbiasis the clinical diagnosis was now clear. Under emetine and stovarsol the purulent discharge rapidly ceased, and in a month the patient was cured. Earlier administration of emetine would obviously have avoided the need for operation.[15]

Case 2, a female, aged 52, who had been gravely ill for 14 days, was admitted with acute abdominal pain, specially localised over the gall-bladder, with sweating, a temperature of 103°, and a leucocytosis of 30,000. She had suffered from severe attacks of colic in four pregnancies. The patient had a curious waxy appearance with anæmia and no jaundice. There was no obvious increase in the size of the liver, and a diagnosis of acute suppurative cholecystitis was made. At the operation an amœbic liver abscess was found which rapidly yielded to emetine and drainage. This patient who had never been out of Spain, had suffered 30 years previously from an attack of dysentery with great pain and bloody stools, then erroneously considered as typhoid. Her village had been infected by repatriated troops after the Cuban war.

Case 3, a male, aged 51, had suffered for several years from a syndrome typical of duodenal ulcer. Four months before admission he had had a severe attack of hæmatemesis and melæna. An X ray examination was not confirmatory of ulcer, and he was recommended careful dieting and alkaline treatment. During our absence he was attacked by severe epigastric pain, diagnosed as a case of perforation, and removed at once to another hospital. On admission, however, his temperature was found to be 103° and he had in addition intense pain in the back and dysuria, which ended in complete retention of urine. Operation was, therefore, postponed and the urine drawn off for several days. He left the hospital after a slow convalescence and returned to us for a further opinion. On examination the epigastrium was perfectly painless. Some dysuria still persisted, but now a lump as large as a fist was palpable in the right iliac fossa. Palpation of the left fossa was also painful and the temperature was found to be 102°. We now noticed the peculiar muddy tint of his face and the obvious anæmia. On further inquiry we elicited a history of dysentery in Cuba 20 years previously. Though a laboratory report of the fæces was negative he was at once put on emetine and stovarsol. The temperature fell to normal in a week and the amœbic typhlitis rapidly disappeared.

Case 4, a male, aged 35, contracted amœbic dysentery in Morocco in 1924, from which he recovered under our care. During the next six years, having neglected treatment, he had four severe attacks of supposed appendicitis, for which he was strongly advised operation elsewhere. He returned to us for operation in 1930, with nausea, great constipation, and continuous discomfort over the cæcum. Under emetine all symptoms disappeared in three days, and he left with instructions to repeat treatment at intervals.

Case 5, a male, aged 30, consulted us for intense flatulence, obstinate constipation. and occasional crises of vomiting lasting three or four days. He was in a peculiarly nervous state, having been under various treatments for two years with no effect. We were unable to find any definite cause for his state and endeavoured to treat the obstinate constipation. He returned two months later, much worse, so weak that he came upstairs with difficulty. On revising his history we found he had resided in Cuba for 11 years. He denied ever having had an attack of dysentery, and a laboratory report of fæces was negative. But emetine and stovarsol in three days removed every symptom and produced a daily action of the bowels. He continues to improve in health and has gained much weight.

Case 6, a male, aged 35, a laboratory attendant, complained of progressive weakness and profound anæmia, of a year's duration, to such a degree that he could hardly walk. During this period he had some indigestion and sometimes bilious vomiting, with occasional slight pain over the liver. The aspect of the patient was that of pernicious anæmia, and during the last nine days he had constantly been vomiting bile. A blood examination by Dr. Romero showed: 2,000,000 red cells, a hæmoglobin percentage of 45; polynuclear leucocytes, 40 per cent.; eosinophils, 3 per cent.; lymphocytes, 52 per cent.; mononuclears, 5 per cent. Some red cells showed poikilocytosis. The spleen was not enlarged. On examination the only sign was discomfort on palpation of the liver, which showed no enlargement. As the patient had lived in Morocco for over two years, though no history of dysentery could be obtained, we suggested that his condition might be due to the anæmia of amœbic hepatitis to which several observers have called attention. Though an examination of fæces was negative, emetine and stovarsol rapidly cured him.

Case 7, a male, aged 52, complained of irregular fever, sweating, wasting, and great pain over the right side of the thorax from the clavicle to the costal margin. He also suffered from great flatulence, obstinate constipation, and violent pains down the left arm for three months, for which he had been treated for rheumatism. Latterly pain became more localised under the right costal margin. The patient now was so weak that he could hardly walk, and when we saw him the temperature was 103°. As a brother had died of tubercle and as his wife had shown bacilli in her sputum, he now considered himself phthisical. Examination of the lungs was negative except for a few fine râles at the right base. A history of dysentery 30 years before in Cuba made a diagnosis of pre-suppurative hepatitis easy, and emetine and stovarsol immediately cured the patient. Three months later he developed a right basal pneumonia. His doctor, now armed with the previous history and the result of treatment, at once ordered him emetine, which rapidly cleared up the pneumonic attack.

Though the intestine, liver, and lung are the favourite areas of the parasite, the spleen, genito-urinary organs and brain may all be attacked. The pages on amœbiasis in Connor's work will repay perusal, for he stresses the importance of "the wanderings of this amœba to parts as distant as the brain and bone-marrow." An interesting parallel between syphilis, malaria, and amœbiasis has been drawn by Ravaut in his useful brochure on their treatment.[14] He coördinates their protozoal parasites, their migration and predilection for certain organs, their latency and periodicity of attack, and the wonderful response to their specific remedies, arsenic, quinine and emetine.

I am indebted to Dr. D. Garcia and Mr. J. Ramos, my anæsthetist, for assistance in the examination and treatment of the patients.

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DEEP BROTH CULTURES OF B C G.

BY A. SAENZ, M.D. MONTEVIDEO.

(From the Tuberculosis Research Laboratories of the Pasteur Institute, Paris.)

G. Dreyer and R. Vollum[1] describe a method by which they claim to have made Calmette and Guerin's bacillus return to its original virulence for guinea-pigs and rabbits. This method consists in culturing B C G in the depth of ordinary veal broth (pH 6·8) contained in 500 c.cm. flasks. They have experimented with two different B C G strains (1 and 359).

I have repeated these experiments, closely following their instructions concerning the preparation of the culture medium and their technique of transplanting the bacilli.

RECORD OF EXPERIMENTS.

On June 21st, 1931, I implanted 400 mg. of a 23 days' culture, on glycerol potato, of B C G 393 in each of four Erlenmeyer flasks, each containing 500 c.cm. of peptonised veal broth (pH 6·8). The implant was deposited in the depth of the liquid, to prevent fragments floating on the surface. On July 22nd, the culture having developed normally, it was transplanted with the same precautions into a second series of broth-containing flasks. On the 27th two tubes of Hohn's egg medium, on which I had implanted five drops of this broth culture, showed abundant growth.

On August 13th the second-passage deep culture of B C G was inoculated into four guinea-pigs; two animals received 5 mg. by subcutaneous and two others 1 mg. by intraperitoneal injection. One of the subcutaneously injected guinea-pigs is still alive; its weight has increased, and it presents no signs of tuberculosis. The other animal inoculated in the same way was killed on Oct. 3rd, and autopsy showed nothing abnormal. One of the two guinea-pigs inoculated intraperitoneally died a few days later of a pneumococcal infection; the other was killed 37 days after inoculation, when autopsy revealed nothing more than a slight thickening of the epiploon.

On the same day (August 13th) I transplanted the deep cultures into two other flasks (third passage), and on August 24th five drops of this culture were implanted on each of two Löwenstein egg mediums; one of these yielded seven, the other one five colonies. On Sept. 3rd, after 21 days' incubation, I once more transplanted the deep cultures (fourth passage) and inoculated it into four guinea-pigs by subcutaneous injection (10 mg.) and into two rabbits intravenously (1 mg.). The rabbits have maintained their weight, and when killed 61 days after inoculation were found free from any lesion. No acid-fast bacilli were found in smears of the spleen and lungs. One of the guinea-pigs died five days after inoculation of pseudotuberculosis. Two others were killed respectively 30 and 43 days after injection, when they presented a slight swelling at the inoculation point and a little hypertrophy of the inguinal lymph glands, in which I found a few acid-fast bacilli. The fourth guinea-pig is still in perfect health.

On Sept. 23rd I implanted five drops from each flask on two tubes of Hohn's egg medium. One of these tubes was still sterile 14 days later, the other one showed two colonies only. On the same day I gathered almost the entire growth in the depth of the two fourth-passage flasks, and inoculated it to eight guinea-pigs by subcutaneous injection (10 mg. each) and four rabbits intravenously (2 mg. each). Two of these rabbits are still in perfect health, having gained in weight. The other two were killed 60 days after inoculation and showed no lesions whatever at autopsy. Four guinea-pigs are still alive and in excellent health. The fifth died a few days after inoculation of an intercurrent infection. The sixth, killed on the 45th day, had only a small abscess, in which we found acid-fast bacilli. The remaining two were killed on Nov. 25th (63rd day) and were found perfectly normal.

A second series of experiments, done under exactly the same conditions up to the third passage with the B C G culture 401, has given the same negative results.

CONCLUSIONS.

Our experiments show that B C G, when cultivated for several generations in the depth of peptonised veal broth (pH 6·8), finally loses its vitality by progressive rarefaction of living elements. Certain passage cultures sometimes even become completely sterile within three months of the first implantation. Consequently our results are in complete contradiction to those of Dreyer and Vollum, both as to the ability of B C G to vegetate in relative anaerobiosis and as to its liability to become virulent under such conditions.

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[1] THE LANCET, 1931, i., 9.

ROMAN CATHOLIC SERVICES AT ST. BARTHOLOMEW'S HOSPITAL.—The governors at St. Bartholomew's Hospital have set aside a room for use as a Roman Catholic chapel for patients and nurses. Among those present at the first Mass was Abbot Smith, of the Canons Regular of the Lateran, representing the Order of which Rahere, the founder of the hospital, was a member.

CLINICAL AND LABORATORY NOTES

A NEW METHOD OF APPROACH TO THE SEMILUNAR CARTILAGES OF THE KNEE-JOINT.

By A. G. Timbrell Fisher, M.C., F.R.C.S. Eng.

Although a surgeon, with special experience of operations upon the knee-joint, usually finds that he is able to remove the whole of the semilunar cartilage through an anterolateral incision anterior to the corresponding lateral ligament, there are cases where such removal of the complete cartilage is difficult, and a protracted attempt is apt to be associated with undesirable traction and manipulation. Moreover, in such cases it is difficult to be quite certain that a portion of the posterior extremity of the meniscus has not been left behind which may necessitate a further operation for its removal. The method that I describe has been used by me in an increasing number of cases of late and has given me considerable satisfaction. By it, it is possible either to perform the necessary operation through the more limited anterior part of the incision, or in cases of special difficulty, by extending the incision, to remove the back part of the semilunar cartilage neatly and with the inestimable aid of direct vision. It is especially useful where a lesion of the back part of the semilunar cartilage is suspected.

A reference to the illustrations will, it is hoped, make the following description clear. Although the description refers to removal of the internal semilunar cartilage, a similar type of operation can be performed upon the external cartilage.

After the usual preliminaries, including the application of the tourniquet, and the knee being in a position of flexion through 90 degrees, a curved skin incision (AB) is first made (Fig. 1). This incision commences above at a point midway between the ligamentum patellæ (L.P.) and the anterior border of the internal lateral ligament (I.L.L.), at the level of the apex of the patella (P.), and ends below and behind, slightly below the internal margin of the tibial head at the anterior border of the internal lateral ligament. The patellar branch of the internal saphenous nerve should be identified and retracted. The capsule and synovial membrane are next divided in the line of the skin incision, but preferably a little nearer to the internal lateral ligament, and the joint thus opened (Fig. 2, XX, Fig. 3). The nature of the lesion of the semilunar cartilage is then ascertained, and an attempt, which often succeeds, made to remove the whole meniscus through this anterolateral exposure. If difficulties are encountered, the surgeon proceeds to the second stage of the operation.

Fig. 1.

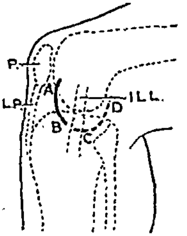
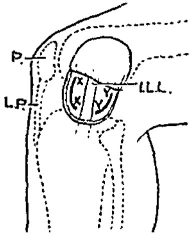
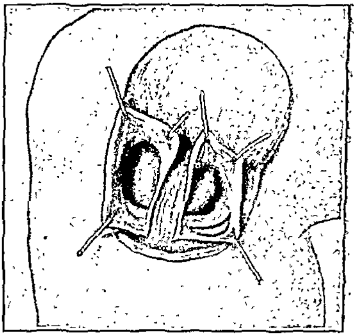


Fig. 2.



Stage 2.—The anterolateral incision having been temporarily closed with a gauze pad, the skin incision (AB) previously made, is continued across the inner side of the joint slightly below the joint level, and is carried upwards and backwards over the inner aspect of the posterior compartment of the joint. The completed incision (ABCD) (Fig. 1) is thus semicircular, and enables a flap of skin and subcutaneous tissues to be raised. The internal lateral ligament (I.L.L.) can be readily identified, and is on no account to be interfered with. A curved incision is next made in that part of the capsule lying behind the internal lateral ligament (Fig. 2, YY), and after dividing the synovial layer an admirable exposure is obtained of the posterior compartment of the joint, with the posterior end of the semilunar cartilage in situ (Fig. 3). The attachments of the latter are cleanly divided aided by vision, and after any remaining attachments of the meniscus to the deep fibres of the internal lateral ligament have been divided, the whole semilunar cartilage can be forthwith removed.

Fig. 3.



In performing this operation upon the external semilunar cartilage, its surgical anatomy must be borne in mind, and in particular, the relationships of the popliteus tendon and of the external lateral ligament to the meniscus. The approach described above may also be found helpful in certain cases of loose bodies in the knee-joint, and in particular, those sometimes seen in which the loose bodies are situated in the lower part of the joint, and in both anterior and posterior compartments. Moreover, by prolonging the anterior part of the incision upwards, it is also possible to explore the suprapatellar pouch where necessary. When the loose bodies are more generalised, the writer's patella-displacing approach, or access by dividing the patella in the median vertical plane, are perhaps preferable.

London.

SULPHUR INJECTIONS IN THE PSYCHOSES.

By J. E. Dhunjibhoy, M.B. Bomb.,

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In 1929 K. Schroeder advocated the use of a preparation of sulphur in olive oil called Sulfosin in cases of general paralysis of the insane and certain other mental disorders. This remedy has now been tested at the Ranchi Indian Mental Hospital, which is the largest and one of the most modern mental hospitals of India. As general paralysis is extremely rare in India amongst the Indians, sulfosin was tried on patients suffering from the following mental diseases: (1) Schizophrenia (18) of all varieties, such as simple, catatonic, stuporous, and paranoid. (2) Manic-depressive psychosis, six; two were melancholics and four manics of acute and chronic types. (3) Benign stupor, one.

The total of 25 cases includes 15 males and 10 females. Their ages varied from 17 to 45 and their stay in the mental hospital from 6 months to 16 years. Some were recent admissions, and others had been in the hospital for several years and had shown no improvement in their mental condition.

Technique.—As sulfosin Leo is not available in India, the solution was prepared by rubbing up the required quantity of sulphur sublimatum with pure olive oil in a gallipot, and placing the suspension in a hot oven until all had dissolved. The injections were given in increasing doses, commencing with 1 c.cm. and increasing each time by 1 c.cm. Twelve such injections at the rate of two a week were given into the muscles on the outer side of the thigh. The injections were given as a rule at 6 P.M., so that the patients could sleep comfortably at night; the temperature usually rises about 11 hours after the injection.

REACTION.

Temperature.—The reaction was greater in females than in males. Out of 120 injections given to ten female patients, we were able to record a temperature over 103° F. on 53 occasions, whereas in the males, out of 180 injections such a rise was recorded only on 20 occasions. Four female patients showed a rise between 103° and 104° on eight occasions in a course of 12 injections. In no case throughout the course was a temperature of less than 101° ever recorded.

The temperature was taken half-hourly from the commencement of pyrexia until it was normal, and then four-hourly. The temperature in my cases returned to normal in about 14 to 18 hours, although in some cases there was a secondary smaller rise which returned to normal in a few hours. As claimed by Schroeder, I tried to regulate the pyrexia by dosage but did not succeed. In some cases I was able to register 104° by an injection of 3 c.cm., whereas in others 12 c.cm. did not produce this result. I suppose individual constitution and idiosyncrasy have a say in this matter.

Pain.—Most of the patients complained of pain at the site of injection, largely due to stiffness in the muscles, but none had any local inflammatory reaction, œdema, or abscess. The pain as a rule disappeared in a few days and was much relieved by fomentation. Marked leucocytosis was noticed in all cases during the reaction. Some female patients had nausea and vomiting and two had rigors. The patient with benign stupor ran a temperature between 101° and 102° for over a fortnight after the completion of his course of 12 injections.

RESULTS.

I classify my results in the following three categories: (1) no improvement at all, 14; (2) improved, 7; and (3) recovered, 4.

By "improvement" I mean that patients who were dirty, destructive, attitudinistic, negativistic, mute, or who had hitherto led a vegetative existence, improved in their mental condition, inasmuch as they became quiet and clean in their habits and began to take a little interest in their surroundings and are now attending the occupational therapy departments where they refused to go before.

One case of benign stupor of acute type, who was lying in bed apparently dead to his surroundings for three and a half years and never opened his mouth, either for food, drink, or word, and who was fed nasally throughout the period, made a marvellous improvement after the complete course of sulfosin. He ran a temperature between 101° and 102° for a fortnight after his course. After this period he got up and began to walk and talk, but with a mild degree of excitement. He now takes his food, talks—though all rubbish—and is still in a mild state of excitement.

Of the four recovered and discharged home as cured, three had suffered from dementia præcox, and one from manic-depressive psychosis. Of the three dementia cases one was in the hospital for three years and was of catatonic type. He improved well after a full course of 12 injections and went home. The other two were fresh cases. The manic-depressive case was highly boisterous, noisy, aggressive, dirty, destructive, and exhibitionistic. Hydrotherapy as well as hypnotics were tried largely in this case without any result. A full course of injections did him a lot of good and he was discharged cured.

I recommend sulphur treatment as well worth a trial in all recent cases of mental disorders. Moreover, the injections are simple and can safely be given to young and old alike and are well within the competence of any practitioner.

THROMBO-PHLEBITIS MIGRANS,

INVOLVING THE DEEP VEINS OF ALL FOUR LIMBS.

BY W. T. COLLIER, *M.C.*, M.D. OXF., M.R.C.P. LOND.,
HON. PHYSICIAN TO THE RADCLIFFE INFIRMARY, OXFORD.

THE disease known as thrombo-phlebitis migrans was defined by J. A. Ryle[1] in 1930 as one in which phlebitis appeared usually in small lengths of superficial peripheral veins, and was sometimes followed by symptoms of inflammation, with small vascular obstructions, in the lungs and abdomen, and more rarely in the heart and brain. He reviewed the present state of our knowledge of the condition, and described five cases personally encountered.

The first description of a type of recurrent phlebitis in which no causal factor could be adduced was given by J. B. Briggs[2] in 1905. Up till then such cases had always been associated with well-known diseases or with gout, in the latter case often apparently on insufficient grounds. Briggs described a series of cases, some of them collected from the literature, and suggested the name of "idiopathic recurrent phlebitis." The records of these cases suggest, however, that they would be better described as creeping than as migratory, since the recurrent attacks were usually, if not always, an extension in the vein already affected.

The term thrombo-phlebitis migrans was apparently introduced in 1928 by T. G. Moorhead and L. Abrahamson[3] in describing four cases which conform to the above definition, and in which there was evidence of involvement of visceral as well as peripheral veins. In two of their four cases the deep as well as the superficial peripheral veins were affected, whereas in all of Ryle's cases the peripheral veins affected were all superficial. In one of the two cases since described by G. C. Low and A. B. Cook,[4] a deep peripheral vein was also involved.

The following case is interesting because the chief incidence of the disease was on the deep, and not (as is usual) on the superficial peripheral veins. Quite apart from the involvement of visceral veins, the resulting illness was correspondingly more severe than usual.

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[1] THE LANCET, 1930, ii., 731.
[2] Bull. Johns Hopkins Hosp. 1905, xvi., 228.
[3] Brit. Med. Jour., 1928, i., 586.
[4] THE LANCET, 1931, i., 584.

A healthy looking and prosperous business man of 53 began about Christmas, 1930, to notice weakness and aching of his legs. He had never had any serious illness, but he stated that about a month previously he had suffered from a very severe cold in the head which he had never completely shaken off. Towards the end of January he suffered for a few days from severe pain in the perineum; nothing was found by his doctor, either externally or on rectal examination. A few days later, however, this was followed by œdematous swelling of the prepuce and more pain in the legs and, a little later still, by severe pain in the right side of the chest on deep inspiration, accompanied by the expectoration of blood-stained sputum.

When I saw him first on Feb. 13th he had had another severe attack of pain in the left leg, and there was now obvious œdema of the left leg below the knee, with considerable tenderness of the calf. Beyond the fact that he had had an evening temperature of 100°–101° F. for the past two to three weeks, the only other signs elicited were an impaired percussion note, weak breath sounds, increased vocal resonance, and slight friction at the right base. The Sigma reaction was negative.

The œdema and pain in the left leg continued to increase and extended up to the groin, but by Feb. 26th it had subsided considerably. The right leg, however, was now enormously œdematous, with a purpuric eruption all over the lower part. For the past four days there had been increasing œdema of the scrotum, which had begun to interfere with micturition. In addition, there was some phlebitis of the superficial veins of the left arm with slight œdema, while a thrombosed vein extended up the right forearm to above the elbow, but without œdema. There had been no pain in the chest for some days, but the signs there were unaltered. The temperature at the time of examination was subnormal, but had been rising to 99°–100° at night. The pulse-rate was 72, regular. The Widal reaction was negative. The leucocyte count showed a polymorph leucocytosis of 27,600 per c.mm.

By March 11th the right leg had become rather less œdematous, but the right arm was now extremely swollen, œdematous, and painful. For the past two to three days the patient had been coughing up blood-stained mucus, and examination revealed an area at the apex of the left lung where the percussion note was impaired and the breath sounds diminished and accompanied by slight friction. An attempt to obtain blood for a blood culture failed because all the veins in the right arm were obscured by œdema, while the superficial veins in the left arm all appeared to be thrombosed.

By March 30th the whole of the left arm was very œdematous and swollen, whereas the œdema of the right arm had now nearly subsided. There was a painful tender swelling of the spermatic veins from the left testis up to the internal abdominal ring. The temperature had been normal for the past week.

By April 28th he was looking very much better, and there had been no further temperature. There was still slight œdema of the left leg, and considerable œdema of the left arm and right leg. About a fortnight previously he had had an attack of acute pain in the subumbilical region of the abdomen which had lasted for four or five days, and had been accompanied by loose stools, without blood or mucus.

Convalescence proceeded uneventfully, and when the patient was examined on Sept. 16th there had been no further attacks, and he was able to get about with the aid of a stick and superintend his business. There was no obvious œdema of the arms, but the left hand was bigger than the right, was very apt to become blue, and the fist could not be fully closed. Both hands were cold, and there was distension of the superficial veins of the right arm; nearly all the superficial veins of the left arm had been thrombosed.

There was gross limitation of movement of both shoulders. There was massive œdema of both legs up to the level of the knees, and slight œdema of the backs of the thighs. The right leg was the worse, and the right foot was said to be always blue in the mornings. Apart from these disabilities, he looked and felt well.

The case appears to be one of thrombo-phlebitis migrans, involving the deep vessels of all four limbs, and associated with phlebitis of the spermatic veins and probably of the pulmonary and mesenteric veins.

MEDICAL SOCIETIES

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

A MEETING of this society on Dec. 18th, with Dr. C. KILLICK MILLARD, the President, in the chair, was devoted to a discussion on

The Mental Treatment Act, 1930.

Sir HUBERT BOND said that it had become the fashion to place prevention in the forefront and spell it with a capital "P," whereas treatment often had to be content with a small "t." While psychological medicine must perhaps always be a specialty, any water-tight compartment was not in its best interests or in those of the patients under its care. The enthusiasm for prevention must not be pursued at the expense of treatment; he or she who was ill cared nothing for prevention. Measures primarily and essentially preventive sometimes involved controversial sociological considerations, and impatience, although perhaps laudable, was apt to urge trial of what seemed to be short cuts to prevention. The speaker admitted that he shrank from this method of approach. There were other methods which, though less spectacular, were to be preferred because of their essential soundness—e.g., treatment of the disease in an incipient and inchoate early phase. Legislative freedom and medical facilities for this early treatment constituted the cardinal features of the Mental Treatment Act, 1930. Prevention was confined to a small paragraph. The Act as a whole, when brought into full force, would, however, prove to be a preventive measure of the highest potency. The Act was an amending Act to the previous Lunacy and Mental Deficiency Acts. It widened the scope of voluntary treatment, thereby avoiding certification and giving a great incentive to early treatment. It created a new status: temporary treatment without certification, thereby lessening the temptations to illegal charge. It considerably widened the scope of the local authorities, and gave statutory recognition to out-patient treatment, after-care, social services, and research. It was disappointing to notice how slowly advantage was being taken of the revised Urgency Order. The battle in mental treatment was more than half won when the patient's voluntary coöperation was obtained. It was important not to jump to the conclusion that certification connoted absence of recoverability, although manifestly the greatest proportion of recoveries would be found among the voluntary and the temporary classes. If the percentage of recoveries in the three classes were compared, however, the certified would not show up at all badly. Indeed, the very act of certification, cutting the Gordian knot of family complications and enforcing firm medical control, was a very valuable form of treatment. In some alcoholic patients it brought about lifelong total abstinence. Nevertheless in most cases certification was a great handicap

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF SURGERY.

A MEETING of this section was held on Nov. 27th with Mr. R. ATKINSON STONEY, the President, in the chair.

Transplantation of the Fibula.

Mr. F. GILL read notes about a girl, aged 10, who was admitted to hospital on Nov. 27th, 1928, with a history of acute osteomyelitis of the left tibia a year before. An operation had been performed in the country, and she had attended a hospital for dressing over a long period.

On examination there was a vertical scar eight inches long on the antero-medial aspect of the left leg. There was loss of the greater portion of the shaft of the tibia, and two discharging sinuses, one from the upper and one from the lower portion of the tibia. Genu recurvatum was present, with two inches of shortening in the leg, and marked muscular wasting of the thigh and calf. Radiography showed an abscess cavity, with a small sequestrum, in the upper part of the tibia, and a similar abscess cavity in the lower part. These cavities were opened, cleaned out, and packed, and when they were healed she was discharged from hospital with a request that she would return in six months.

On readmission in August, 1929, the upper part of the fibula was grafted into the upper part of the tibia. A series of radiograms showed the fibula in good position with new bone formation and increase in thickness. A walking calliper splint was fitted, and the patient discharged from hospital and told to return in four months. Unfortunately she did not come back until May, 1931, when she had outgrown the calliper and was walking with a marked varus deformity. The only method of dealing with the present condition was to transplant the lower end of the fibula into the lower end of the tibia, after the varus deformity had been corrected. A series of radiograms since then show the lower end of the fibula in good position, and bony union has taken place. The fibula, as a whole, shows marked hypertrophy, and its lower end is beginning to thicken.

There is now two inches of shortening of the leg, genu recurvatum is still present, but the patient is able to walk well and the functional result will be very satisfactory.

Several similar cases, said Mr. Gill, had previously been recorded. In 1906, Goldman, of Freiburg, had reported a case of grafting of the upper end of the fibula, after the removal of the upper part of the tibia for sarcoma. Stone, in 1907, had described a case where there was a loss of eight inches of tibia. He performed the operation in two stages; the first was similar to that described, the second consisted in splitting the lower end of the fibula and grafting the inner fragment to the lower part of the tibia. Mr. Atkinson Stoney had reported a case where the upper part of the tibial shaft was completely destroyed, and where grafting of the upper part of the fibula was done with an excellent result.

The PRESIDENT, in congratulating Mr. Gill on his result, said that in the case he described there was not nearly such an extensive loss of bone. It was extraordinary to watch the development of the fibula as time went on.—Mr. W. DOOLIN mentioned two cases of acute osteomyelitis on which he had recently operated, and condemned the procedure of primary diaphysectomy.—Mr. H. STOKES said that if the tibia was taken out in a case of acute osteomyelitis, non-union always resulted. He regarded diaphysectomy as quite unjustifiable.—Mr. H. F. MACAULEY thought that a primary diaphysectomy should only be done if radiography showed periosteal involvement of the bone.

Parotid Tumour.

Mr. J. C. MCMULLIN read notes on a case of mixed parotid tumour, and showed the patient, a woman 48 years old, who had contracted mumps in 1895.

A small lump persisted in the parotid region, and was removed three years later, but recurred immediately. It was again removed in 1901, but again recurred, until in 1913 it gave rise to facial paralysis, dysphagia, dyspnœa, and some pain, for which surgical intervention was again sought. It was not then thought possible to deal with the tumour successfully, and it continued to increase in size until in 1924 it had become as large as a melon, extending from the zygoma to the angle of the mouth, over the lower border of the mandible, pushing the ear upwards and backwards, spreading deeply into the neck, and enveloping the ascending ramus and temporo-maxillary joint. There were neither metastases nor glandular involvement.

Complete extirpation of the whole gland was done in December, 1924. In the six years which have since elapsed there has been no recurrence.

The outstanding features of the case, said Mr. McMullin, were the slowness of growth, the pre-operative facial paralysis, and the repeated recurrences without metastases or glandular involvement.

The PRESIDENT said that it was impossible to remove tumours like this without the occurrence of facial paralysis. He had a somewhat similar case at present, and felt encouraged to operate when he saw Mr. McMullin's good result.—Mr. STOKES said he had never seen such an extensive parotid tumour successfully removed.—Mr. F. J. MORRIN said that these tumours were often said to follow injuries to the parotid gland. He had recently seen a boy with a tumour about the size of a tennis ball, who died in six weeks, when the growth had extended over the face. The injury in the present case might have been the original attack of mumps.

Percaine.

Dr. R. W. SHAW read a paper on his experiences with percaine. He had used it, he said, in 30 cases now reported, in 25 of which the operation was abdominal, varying from gastrostomy to appendicectomy. There were two failures in the series, one of which was due to an insufficient dose. In the other case the patient was given a general anæsthetic, but it was afterwards realised that analgesia was probably complete at the time, sensitiveness to touch only, and not pain, being tested. Anæsthesia was good in the 28 successful cases, and in muscular people there was greater relaxation and abdominal immobility than could be obtained with general anæsthesia. Eight patients developed headache, but in only one case—the one in which a general anæsthetic was given besides percaine—was it severe, being eventually relieved by intravenous hypertonic saline. There were 17 cases of vomiting, only two of which were severe. In Dr. Shaw's experience, percaine was the most satisfactory spinal anæsthetic yet evolved.

The PRESIDENT thought that in cases in which it was impossible to give a general anæsthetic, percaine was extremely useful.—Mr. MORRIN, said he had been an advocate of spinal anæsthesia for the last 12 years. He had obtained excellent results from novocain. After percaine was used there was sometimes a fall of blood pressure and rather severe headache, and in one case he had seen a very severe rectal paralysis.

Dr. SHAW replying to Dr. T. BOUCHIER-HAYES, said that better relaxation and *immobility* were obtained with percaine than with spinocain. It was advisable to use percaine for prostatectomy, owing to the possibility of renal failure.

MANCHESTER EPILEPTIC COLONY.—The annual report of the David Lewis Manchester Epileptic Colony, at Warford, near Alderley Edge, shows an increase from 381 colonists to 407 during the year, the original houses having been further enlarged.

REVIEWS AND NOTICES OF BOOKS

Diagnosis and Treatment of Brain Tumours.

By ERNEST SACHS, A.B., M.D., Professor of Clinical Neurological Surgery, Washington University School of Medicine, Saint Louis. London: Henry Kimpton. 1931. Pp. 396. 42*s.*

THIS is the first surgical text-book of importance on intracranial tumours by a modern neurological surgeon, and it would have been difficult to find anyone more fitted to write it than Dr. Ernest Sachs. A pupil of Horsley and of Halstead, he was trained in two schools which have probably contributed more than any others to the foundation of neurological surgery. The book supplies an up-to-date account of the rapidly advancing knowledge on intracranial tumours, and at the same time sets out the steps which led to the development of current beliefs and practice. In the first chapter on anatomy the author breaks away from the older descriptions of cerebrocranial topography, and describes just those anatomical points that will be of use to the surgeon, such as the surface markings of the ventricles. These are illustrated with an admirable coloured drawing which shows the relation of ventricles, convolutions, blood-vessels, skull, and face. The second chapter on methods of examination, contains a valuable and profusely illustrated account of X ray diagnosis and ventriculography. The scheme for case-taking is too elaborate, and the 20 different methods recommended for testing sensation are surely too many for routine use. The importance of examination of the visual fields is rightly stressed; the claim that the term "hemianopia" refers to the part of the retina affected, while "hemianopsia" refers to the part of the visual field affected, is not likely to be acceptable in this country where the terms are held to be synonymous. In explaining homonymous hemianopia in tumours of the temporal lobe, Dr. Sachs does not mention the work of Traquair, which shows that the symptom is often due to pressure on the optic tract rather than to involvement of Meyer's loop.

In the section on pathology Dr. Sachs follows the work of Bailey and Cushing on gliomas, and of Penfield on meningeal tumours. The general symptoms of raised intracranial pressure are well described. The account of papillœdema and of the effect on it of removal of tumours shows the author's ripe experience and sound judgment to great advantage. The focal symptoms of intracranial tumours in various regions are dealt with in sections which should be valuable both to surgeons and neurologists, for each important point is illustrated by detailed case-reports from the author's own series, and these contain a wealth of information and hints of a practical nature. There is a useful chapter on differential diagnosis.

The section on operative treatment and post-operative care provides an admirably clear account of modern methods and the principles that underlie them, and this is followed by a short description of the more common operations for tumour in various parts of the brain. Dr. Sachs has been wise in resisting the temptation to go into greater detail in this section, for in the past text-books of brain surgery were hopelessly overbalanced by lengthy descriptions of untried operations and mechanical devices for opening the skull, and gave no indication of the important need that the surgeon should investigate his cases at the bedside before operation. Dr. Sachs preaches that need from every page of his book. He has succeeded in giving an essentially practical account of neurological surgery in clear and simple language, and the book is to be commended to all who are interested in brain tumours. Although the work is short it covers a vast field, and through its bibliography, which refers to most of the important papers and monographs on intracranial tumours published during the last 30 years, it will act as a source of information hitherto inaccessible to students. No neurological surgeon of experience can afford to neglect the book because he has progressed beyond the stage of interest in text-books, since Dr. Sachs has been able to find room for important unpublished work of his own, for example, on the treatment of racemose angiomas.

The Commoner Nervous Diseases.

By FREDERICK J. NATTRASS, M.D., F.R.C.P., Assistant Physician, Royal Victoria Infirmary, Newcastle-on-Tyne. London: Humphrey Milford, Oxford University Press. 1931. Pp. 218. 12*s.* 6*d.*

THE requirements of the student and practitioner are well catered for by Dr. Nattrass's compendious yet succinct descriptions of the commoner nervous diseases. Commencing with disseminated sclerosis and neurosyphilis, he takes up seriatim the affections likely to be met in everyday clinical work, and deals faithfully with their outstanding features and with their treatment. Rarities are omitted and controversial aspects eschewed. Certain symptoms such as vertigo receive separate consideration. The student is not burdened with excessive detail, nor is much said of the neuropathological side of the diseases. But however simple the exposition, it is clear that Dr. Nattrass is familiar with neurology of a more elaborate kind than is here sketched; the soundness of his doctrine and the width of his conceptions are made evident to the trained neurologist at many points in the pages. A few illustrative clinical instances are inserted at intervals to bring greater actuality into the descriptions. So far as we have observed there is little indeed to criticise; within the limits assigned the author has accomplished satisfactorily a difficult task, steering successfully between baldness of narration on the one hand and diffuseness on the other.

Psychiatrie.

By ANDRÉ BARBÉ. Médecin aliéniste des Hôpitaux de Paris. Paris: Masson et Cie. Pp. 195. Fr.16.

THIS is one of a series of introductory manuals intended for the medical student and practitioner. In such a work it is proper that more than half the book should be devoted to methods of examination. In the difficult task of investigating a patient's mental state, the tiro will find the detailed instructions here given most helpful; the advice as to examination of physical and metabolic changes is briefer, and somewhat superficial, though that is scarcely a fault in an elementary manual of this kind. The sections on examination are the valuable part of the book; the rest is humdrum, careless, and old-fashioned; there is no consideration of prognosis or treatment, and only gross psychosis is described. This is likely to give the beginner a false impression and may foster current misconceptions as to distinctions between the beginning of the present century. But gradually the necessity of a sanatorium was perceived by the governing bodies of all the large public schools and the medical officers, who with increasing frequency had been appointed to advise the schools, became the natural directors of the sanatorium. As the movement became common, the obvious question arose as to what number of sick beds should be held in readiness in relation to the number in the school. The ratio 15 per cent. became usually accepted, and the experience of schools, between limits of 300 and 600 boys, confirms this figure, but the proportion at Epsom is rather more generous. This may look like extravagance on the part of the governing body at Epsom, but it should be realised that provision against accident and diseases of emergency or due to temporary causes, has been made unusually inclusive, and the policy of prevention, which is always economical, has been introduced. It is proposed to deal in the sanatorium at one and the same time with the infections common to school boys with ordinary ailments and accidents, while providing opportunities for the segregation of the infectious from the non-infectious cases. A comparatively large number of beds are allocated to cases which require watching. Early segregation of these suspicious cases may often prevent any large call being made on the general accommodation of the sanatorium. Further, it is the intention to include accommodation for sick members of the teaching staff, and the staff at Epsom is now a large one, while the modern young school-master mixes freely with his charges and suffers with them the risks of any school epidemic. Undoubtedly the size of the sanatorium requires explanation, and a very good one is found.

The fundamental change in the organisation of the College is the abolition of the system whereby pensioners and foundation scholars were elected by the governors as a whole, voting by ballot. This method of selecting the beneficiaries worked well at the inception of the College, but with the increased and increasing size of the constituency, it became obvious that it no longer met the situation with fairness. The risk was seen to be becoming large that the best candidates would not always meet with success, while the friendless child might be at a serious disadvantage—indeed he might be quite unable to bring his claims properly before the authorities. Yet he might be exactly the child whose benefit the originators of the foundation had most in contemplation. The change of procedure in the internal policy of the College was suggested primarily by the executive body who prudently took the views of the subscribers before effecting any change. A questionaire was issued by the Council to all the governors of the College, in order to ascertain their collective view, when the reform was endorsed almost unanimously. The spirit of the executive and the generosity of the governors are equally displayed by the activities of the year just passed, and we plead the cause of Epsom College for wider support with conviction of the great and increasing value of its work.

THE NAKED ABORIGINE.

CLOTHES have been regarded as an index of intelligence. If this is taken as a sound guide the native inhabitant of the central Australian plain must stand very low in the scale, for in most of the pictures in Prof. PORTEUS's recent study,[1] men, women, and children alike are frankly naked. They seem in fact to be devoid of any feeling in the matter. At the Trappist Mission on Beagle Bay the natives cheerfully adopt whatever rules of conduct are imposed upon them, and as soon as a white person approaches there is a scurry to put on shirts and pants, but as soon as the group "goes bush" every stitch of clothing will be shed. Clothes are for the protection of our modesty, not theirs. Nakedness has been imposed on the Australian native partly of necessity. Scarcity of food has enforced a wandering habit on these people and it is no uncommon thing for a woman to cover ten or twenty miles a day to supply the needs of her family. Loaded with digging-sticks and possibly a young child, any sort of clothing, especially furs of animals, would impede movement and be injurious. Previous ethnologists[2] have in fact noted the tendency of clothes to increase pulmonary troubles, although they were under the impression that the idea of utilising animal skins had not even occurred to the native. Unfortunately there is no white man who has lived into the Australian aboriginal mind as the late Mr. ELSDON BEST did into that of the Maori. It now seems clear that nakedness is the result of choice, not of ignorance. It is true that night temperatures even in Central Australia may fall very low, but, as Dr. PORTEUS remarks, while there is no way to become cool if you are hot a fire will mitigate the cold at night, and the native chooses to depend on his camp fire rather than burden himself with furs in the daytime. The hardness of life is accentuated by the absence of animals that can be domesticated. Owing to the premature isolation of Australasia from the Eastern Continent all the groups of mammals that have been tamed by man to useful purposes are missing from the fauna. The dingo dog is of course a recent importation, and the kangaroo is too saltatory to serve as a beast of burden. No one can imagine an Australian aborigine yoking up a pair of kangaroos to his possessions while on the march, in the same way as the Eskimo uses dogs or the Laplander his reindeer. It was this limited equipment which made Captain COOK take such a disparaging view of the few long-speared natives with whom he parleyed unsuccessfully on the shore of what is now Sydney Harbour.

Judged however by a more appropriate standard the Australian aborigine does not come out too badly. Dr. PORTEUS has for the last eighteen years been using a test of his own devising, because of his dissatisfaction with previous methods of mental diagnosis. The problem he set himself to determine was how well can the *individual* function in society, and among the more *important* traits he placed prudence, with which is bound up capacity to profit by experience and ability to use foresight in planning a course of conduct. To test these qualities apart from the spoken or written word he devised *motor*-intellectual tests, which he presented at a meeting of the British Association in 1914 and are now known by his name. The child is given a series of geometrical figures (familiarly called mazes) and asked to take his pointer from the starting-point (S.) and to find his way out. The *mazes* are graded in difficulty suitable for ages 7 to 14 years and a sample of them is here reproduced, slightly reduced in scale. In boys he found that want of success in the test was associated with lack of planning capacity, irresolution, and obtrusiveness; in girls with impulsiveness and suggestibility. Since then the test has been subjected to a widespread study and it has been shown that as far as whites are concerned it has a distinct correlation with industrial trainability. Applied to aborigines the maze tests have the advantage of capturing their interest. Some of the old Australian native men took their trials very seriously, working carefully and being manifestly chagrined when they made errors. A young man who had recently come in from the desert and spoke no English whatever showed an excellent response, studying the test in advance and evincing good planning capacity. Another showed the reactions of a very slow chess-player. The mean score of the whole group of over a hundred aborigines tested was just short of eleven years (see Figure); about the same as a twelve-year Chinese boy or ten-year Japanese, Dr. PORTEUS adds that there are among the aborigines individuals whose planning capacity is decidedly above the average of whites. This capacity can hardly save the remnants of a race which seems to be dying out almost in advance of the civilised settler. Shut out from the fertile fringes of the continent, life on the vast barren plains of the interior may not long be feasible, any more than it was in Tasmania.

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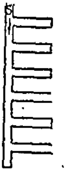
[1] The Psychology of a Primitive People: A Study of the Australian Aboriginal. By Stanley D. Porteus, Professor of Clinical Psychology in the University of Hawaii. London. 1931. Pp. 438. 30*s*.

[2] e.g., Spencer, B., and Gillen, F. J.: Across Australia. London. 1912.



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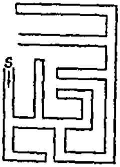

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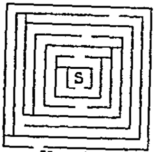
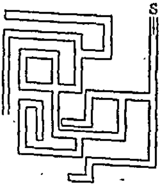
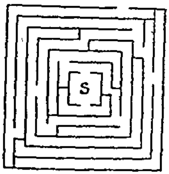


Year XI



Year IX



Year XIV

ANNOTATIONS

INCURABLE CANCER.

Two statements that are often made in connexion with cancer cases are that there is insufficient hospital accommodation for the advanced and incurable case, and that general practitioners retain patients under their own care far too long, so that by the time they reach hospital it is too late to cure them. Neither of these allegations is supported by an investigation made by Dr. J. E. Forber—more familiar to us as Dr. Janet Lane-Claypon—published by the Ministry of Health.[1] It was suggested about four years ago that the Departmental Committee on Cancer should investigate the extent to which medical and nursing services were applied for and received by poor people dying of cancer. The inquiry was located in the eastern part of the county of London, and 24 voluntary hospitals, 20 municipal hospitals, and a number of general dispensaries were approached. Unfortunately many of the voluntary hospitals failed to send in the information required, and in the end the inquiry was based on 1983 schedules, of which the great majority came from municipal hospitals. The material proved to be very complicated, and the results are put forward as suggestions rather than conclusions. One of the features brought out by the available data was a confirmation of the familar fact that cancer of the lip, tongue, mouth, and larynx shows a low mortality among women, while cancer of the female reproductive organs has a relatively overwhelmingly high one. The cases were grouped in five classes: recurrences after radical operation, treatment by irradiation, palliative operation, exploratory operation, and neither operation nor irradiation; and the number of cases who had had palliative or exploratory treatment proved unexpectedly high. The patients were again classified according to whether they first had applied for help to a general practitioner, a voluntary hospital, or a branch of the municipal service; no less than 69 per cent. of them had been first to a private medical man. That the doctor did not delay matters is shown by the fact that the mean interval between noticing symptoms and applying for advice at a hospital is 3·4 months for those who went first to a doctor, and 5·17 months for the total. The comparatively short period which elapsed between first noticing symptoms and the diagnosis of "incurable" suggests that cancer of certain sites progresses to an advanced stage before producing alarming symptoms. In all, 206 patients applied direct to the municipal service, and there was never any delay in obtaining in-patient care at a municipal hospital. It may be a little surprising to those who still think of the long drawn-out agony of death from cancer to learn that the mean duration of in-patient care was 2·28 months for all cases under one month in 46 per cent., and over six months in only 7 per cent. Combining these figures with the interval between noticing symptoms and application to a hospital, it may be said that in most of these incurable cases the patient was dead in about seven months from the time they first noticed symptoms. Contrary also to the usual view, there is some indication that the duration is shorter in old people. The mean age at death illustrates the low mean age in cancer of the uterus, ovary, lung, and pleura, and the high mean age in cancer of the skin and prostate. Roughly, from one-quarter to a third of patients of cancer of the breast, uterus, and tongue below the age of 60 are untreated, and only from one-quarter to one-third above this age are treated. The absence of treatment in older patients may be due to disinclination to face radical measures or to the shorter duration. The report contains much other suggestive information for those concerned with the public health.

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[1] Incurable Cancer. Reports on Pub. Health and Med. Subjects, No. 66. H.M. Stationery Office. 1931. Pp. 59. 1s.

L.C.C. LABORATORY SERVICE.

FOUR years ago a Southern group laboratory was started at the Park Hospital, Hither Green, which undertook to supply stains, culture media, and other material to various M.A.B. hospitals and institutions. When these were taken over by the L.C.C. the plan was further extended, and arrangements have now been made whereby any L.C.C. hospital or institution may obtain culture materials, standardised solutions, or stock vaccines from the laboratory at Hither Green. The group laboratories at Archway (Highgate), Lambeth, and Lewisham Hospitals draw their requirements from the same source, and the amount of material issued will increase as the work now done by outside authorities is taken over by the new L.C.C. laboratories. The Southern group laboratory is now, for example, examining 2500 samples of milk annually for the presence of tubercle bacilli, work previously done at the Lister Institute. The value of such centralisation depends on rapid and efficient transport, and a light motor-van is now being provided to convey specimens for examination from the various hospitals to the group laboratories, returning with stock materials.

NON-DIABETIC GLYCOSURIA IN CHILDHOOD.

Prof. G. Fanconi,[1] of Zurich, in reviewing this subject, begins by saying that he diagnoses primary or familial renal glycosuria if he finds glycosuria with a normal fasting blood-sugar and normal blood-sugar curve, if the usual accompanying symptoms of true diabetes are absent, and if there is harmless glycosuria in other members of the family. As an example of secondary, or nephrotic, renal glycosuria he mentions a case where, following a chronic *Bacillus coli* infection, an infant developed glycosuria with a low level of blood-sugar—as low as 56 mg. per cent. on occasion. His second big group of cases of glycosuria in childhood comprises those associated with diseases of the nervous system. The presence of sugar in the urine in such conditions as tuberculous meningitis and cerebral tumour has long been recognised. Glycosuria was reported by Feer in one of the earliest accounts of pink disease, and in Fanconi's series of 16 children with this disorder the fasting blood-sugar was frequently higher than the normal average, and the response to dextrose often resembled that seen in genuine diabetes. It is also stated that in chorea glycosuria is not uncommon. A group of children with a tendency to run a temperature for no apparent reason ("constitutional hyperthermic children") is also included in this "nervous" group, and here also there is a tendency to hyperglycæmia and glycosuria after the administration of dextrose. Third in Fanconi's classification come endocrine disorders other than those affecting the islets of the pancreas. Here he describes the hypoglycæmia of dystrophia adiposo-genitalis in contrast to the hyperglycæmia of patients with precocious puberty. Included in this group are also those children with diseases of the thyroid gland. Another interesting group are those with so-called febrile glycosuria, which is probably closely associated with some nervous disturbance. In infants suffering from some forms of toxæmia sugar is often to be found in the urine, according to the Berlin school, and in the clinical syndrome known as alimentary intoxication the fasting blood-sugar is said to be above the average, while in atrophy and dystrophy of infants—using again the German classification—a low blood-sugar is the rule. Prof. Fanconi discusses some of the very difficult points in association with these disturbances of sugar metabolism in infants; and in another paper[2] Dr. H. Schönfeld records the level of the blood-sugar in normal infants after various periods of starvation. After fasting intervals of 12 to 16 hours the blood sugar falls considerably, he finds, and there is a very low curve after giving dextrose. Evidence is adduced that this "hunger hypoglycæmia" is not due to any increase in insulin activity. Fanconi's patients were all suffering from various disorders of the alimentary system, and hence his results are not directly comparable with those obtained with normal infants. He describes, in contrast to these, certain cases of "hunger diabetes," where children on diets especially constructed to be poor in carbohydrate (in the treatment of epilepsy) exhibited glycosuria and raised blood-sugar levels closely resembling the biochemical picture found in true diabetes. These cases, taken with several clinical examples of glycosuria appearing at the height of an attack of acetonæmic vomiting, raise many difficult points, and there has been much controversy, especially in Germany, about whether insulin should be given in severe attacks of acetonæmia. The finding of raised blood-sugar in the cases described in Fanconi's paper casts doubt on the action of glucose in this condition.

THE CONTROL OF THE PRACTICE OF DISSECTION.

PUBLIC interest in the difficulties with which anatomists have had to contend in procuring material for investigation and teaching has been stimulated by recent dramatic representations of the notorious crimes of Burke and Hare. Those who are concerned to ascertain the bare facts in their proper historical setting, and shorn as far as possible of dramatic colour, will find that in the second edition of his little book[3] on the history of anatomy, Dr. R. H. Hunter has added a considerable section dealing with the Resurrectionists. The book provides a good perspective in its estimate of the struggles of anatomists in different ages. Dr. Hunter seems to accept a common belief that the Church was purely obstructionist in the Middle Ages. It is true that Henri de Mondeville in the thirteenth century speaks about the necessity of obtaining leave from the Church before even opening a body for embalming purposes; and Guido, of Papia, begins his "Anatomy" with the statement that the Church forbade any anatomising of the human body, but this last author was a contemporary of Mondinus, who certainly did anatomise the human body. The University of Bologna was in the hands of the legal fraternity, and Mondinus could only carry on his activities with their sanction. In a letter Sixtus the Fourth lays down the rule that any cutting of a dead body can only be done with permission of the authorities, lay and spiritual, while all this time the practice of dissection was growing. There is at any rate some ground for the idea that the action of the Church was as much protective as obstructive. After all, in England to-day we practise anatomy under the licence of authority, without which we suffer pains and penalties. Finally, anyone who is acquainted with the wording of the celebrated Bull of Boniface VIII. would, we think, find it extremely difficult to read into it anything remotely suggesting application to anatomical procedure, or other than interdiction of common processes used before conveying bodies for distant burying. Dr. Hunter's book is very accurate on the whole but is marred by errors. Acquaintance between Realdus Columbus and Harvey can hardly be maintained when it is remembered that the former reached the end of his life a good many years before the latter was born. The suggestion that Alexander founded the great "Museum" of Alexandria is hardly fair to Ptolemy Soter, whose vision of the possibilities of the city was much greater than that of his old master. The claims of Magnus Hundt, whose book (1501) is really an "Anatomy," although he termed it "Anthropology," should be considered, perhaps, when first illustrations are discussed.

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[1] Jahrb. f. Kinderh., 1931, cxxxiii., 257.

[2] *Ibid.*, p. 331.

[3] A Short History of Anatomy. Second edition. By Richard H. Hunter, Ph.D., M.D., M.Ch., Lecturer in Anatomy, Queen's University, Belfast. London: John Bale, Sons, and Danielsson, Ltd. 1931. Pp. 86. 3*s.* 6*d.*

AMŒBIASIS OUTSIDE THE TROPICS.

FROM time to time cases of amœbiasis are encountered in the temperate zones. In many of them doubtless the infection was contracted during visits to tropical or sub-tropical areas; others may be traceable to carriers, while others again might be called indigenous. The fact that cases have been reported more commonly since the war can be explained by the movement of troops into the tropics at that time, and by the likelihood that practitioners are more familiar with the condition. Even now, however, it must very often escape notice because the clinical picture is not by any means always the picture of amœbic dysentery drawn for us as students. In a paper elsewhere in this issue, Dr. Ian Macdonald describes seven cases, seen in Spain, in which the symptoms suggested such diagnoses as cholecystitis, perforated duodenal ulcer, appendicitis, pernicious anæmia, and pulmonary tuberculosis. "Though the intestine, liver, and lung are the favourit eareas of the parasite," he says, "the spleen, genito-urinary organs and brain may all be attacked." The initial infection of the bowel often passes unnoticed by the patient or may have taken place so long ago that it has been forgotten. And as Dr. Macdonald points out, it may have been atypical even at the beginning. P. A. Brooke and R. H. Goodale[1] go further and emphasise the necessity for direct examination of the bowel. In three of the five cases which they report from Massachusetts the infection might have been acquired in tropical countries, but the interval between possible infection and the actual date of treatment was long enough to suggest a latent infection or at least a period when symptoms were insufficient to call for medical advice. The absence of *Entamœba histolytica* in the stools, whereas bowel scrapings yielded positive results, is in accordance with experience in tropical practice, and illustrates the need for sigmoidoscopy wherever the diagnosis is open to doubt. Dr. Macdonald regards a favourable reaction to emetine as evidence of amœbic infection, but injections of emetine alone, even in prolonged courses, were insufficient to allay symptoms in the Massachusetts cases, and drugs by the mouth were similarly unsuccessful when given without adjuvants. Possibly a combined attack with emetine-bismuth-iodide by the mouth, together with high rectal lavage with a solution of yatren, would have produced more dramatic results. It must however be borne in mind that these patients were physically poor material for any form of treatment, since they were debilitated by long-standing disease and those who died had an added acute ulceration of the bowel. Like Dr. Macdonald, Brooke and Goodale draw attention to the importance of learning to recognise the varied manifestations of amœbiasis. Too many cases are still diagnosed only after every other possible cause of the symptoms has been suspected and treated, and the patients have thus been subjected to protracted suffering which they might have been spared.

SMOKING AND ENDURANCE.

PROFITING by the opportunities afforded by the three-mile cross-country run held at the end of every physical training assistant-instructors' course at Aldershot, T. F. Kennedy[1] has studied the influence of smoking on the endurance of the runners. During ten years nearly 2000 men were observed. These were graded into non-smokers, moderate smokers (those taking the equivalent of less than 20 cigarettes a day), and heavy smokers (those taking the equivalent of 20 cigarettes or more a day). The numbers in the various groups were: non-smokers 345, moderate smokers 1461, and heavy smokers 167. Of the non-smokers 18·8 per cent. were amongst the first ten to arrive home in the three-mile race, while the corresponding percentages for the moderate and heavy smokers were 8·6 and 6·0 respectively. Further, a study of the last ten men to finish the race each year showed that only 4 per cent. of the non-smokers were in this group, but 11·4 per cent. of both the moderate and heavy smokers. These figures obviously suggest that smoking reduces physical endurance, which is highly probable; but they must be qualified by the recollection that would-be athletes often eschew tobacco, while their weaker brethren take to it very readily.

COST OF TREATMENT OF SCHOOL-CHILDREN IN LONDON.

AT its last meeting before the Christmas recess, the London County Council considered the arrangements for 1932–33 for the medical and dental treatment of school-children. In submitting its proposals, the education committee stated that they had paid "particular regard to the need for economy, whilst at the same time providing for the medical and dental treatment services to be carried on with the minimum of restriction so far as facilities for treatment were concerned." Provision is now being made for a total of 289,298 cases, as against 287,604 in the year 1931–32. This total is made up as follows: eye cases, 42,040; ear, nose, and throat, 21,380; ringworm, 664; minor ailments, 77,550; teeth, 145,970. The committee has reviewed the charges to be made to parents, with a view to determining whether additional revenue may be obtained without jeopardising the success of the treatment arrangements. All children operated on for adenoids and tonsils are now retained in the various centres as in-patients. The cost to the Council has consequently increased to 17*s.* 2*d.* a case, although the charge to parents remains at the flat rate of 2*s.* which was adopted when all cases were dealt with as out-patients. It is therefore now proposed to increase the charge to 5*s.* per case. No changes are proposed in the charge for dental treatment, except that an additional shilling will be imposed when extensive treatment is necessary, bringing the total up to 3*s.* For slight treatment only 1*s.* will be charged. In the case of the X ray treatment of ringworm, the present charge of 2*s.* will be retained, the committee remarking that the disease has been almost exterminated from the schools. The conditions for treating minor ailments will remain unaltered, no charge being made for the first fortnight. It is anticipated that the cost to the Council of these arrangements for the financial year will be £116,189, as against £117,084 in 1931–32. The alterations were resisted by the Labour members in the Council on the ground that any increase was a matter of serious moment to poor parents, particularly in the present economic crisis, that the efficiency of the service would be impaired, and that many children requiring treatment would fail to present themselves. After a long debate, the whole of the recommendations of the Committee were adopted.

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[1] New Eng. Jour. Med., 1931, ccv., 130.

[1] Jour. Roy. Army Med. Corps, December, 1931, p. 451.

EXERCISES FOR POSTURAL DEFECTS.

A USEFUL guide for teachers and school physical training instructors who have the supervision of children with postural defects is supplied in an illustrated pamphlet recently issued, entitled School Orthopædics.[1] It has been compiled by Miss L. S. Rolleston and Lieut.-Colonel W. K. Steele, R.A.M.C., for the Devizes Orthopædic Clinic. Miss M. Forrester-Brown contributes a foreword congratulating the Wilts and Somerset County Councils on having provided a full-time posture expert, but pointing out that one expert, however efficient, cannot supervise the growth of 30,000 to 40,000 school-children in a county. The coöperation of school-teachers and parents in this most important work is required. The simple exercises set out and fully illustrated in the pamphlet have been approved by experts all over the world.

QUININE IN PNEUMONIA.

SINCE Aufrecht, of Magdeburg, recorded in 1899 his experiences with injections of quinine in pneumonia, the method has been tried by many other clinicians without coming into general use. Dr. Helge Roos[2] has collected reports of cases whose total runs into four figures, and maintains that controlled tests have been emphatically in favour of the treatment. He introduced it at the Maria Hospital in Helsingfors in 1927, and continued it throughout 1928, choosing his controls, he says, on the principle of withholding the treatment in every second case admitted—though he does not explain why there were only 84 controls to 105 quinine-treated patients. Among the latter there were 9 deaths, whereas among the 84 controls there were 13. As nearly 30 per cent. of the controls were over 50, whereas only 15 per cent. of the quinine-treated patients were above this age, the comparison had to be readjusted. But even when only those patients were considered whose ages fell between 15 and 50, there was still an advantage for those who had quinine. Thus, among 56 treated patients with an average age of 28 there were only 2 deaths, whereas among the 59 controls with an average age of 30 there were 7. It was further noted that the temperature in the quinine-treated cases usually fell by lysis, while among the controls crisis was the more common ending. The quinine was given by intramuscular injection on the first, second, fourth, and sixth days of treatment, the dosage being, as a rule, 5 c.cm. of a solution containing 2 parts of quinine hydrochloride to 1 part of urethane and 20 parts of distilled water.

CHOKED DISC.

THE form of so-called optic neuritis known as papillœdema or choked disc is due not to any actual inflammation, but to the venous engorgement that results from distension of the subarachnoid space surrounding the optic nerve; this, in turn, follows upon a rise of intracranial pressure, whether due to a cerebral tumour or to any other cause. A second factor is obstruction of the lymph drainage of the papilla.

Such is the generally received theory of the pathology. It was worked out by Leslie Paton and Gordon Holmes on the basis of a large number of tumour cases seen at the National Hospital, Queen-square, and examined post mortem.[1] No evidence of compression of the vein in the axis of the nerve was demonstrated; on the other hand, some of the illustrations showed apparent compression of the vein as it crossed the subarachnoid space. An alternative theory put forward by certain German pathologists (Schmidt, Rimpler, and Schieck) that there is direct continuity between the subarachnoid space and the perivascular lymphatics about the central retinal vessels, has now been tested by E. Wolff and F. Davies[2] with negative results. Their experiments were conducted on dogs, cats, and rabbits, and they found by the use of coloured dyes that it was impossible to produce a coloured papillœdema by any pressure compatible with life exercised by way of the subarachnoid space. They therefore claim to have disproved the theory of direct connexion between that space and the lymphatics of the eye. Further, they were unable to convince themselves that it is possible by direct pressure to produce an experimental papillœdema at all in the dog. This may be because in the dog the anatomy of the vessels of the disc is not the same as in man. Instead of a central artery and vein which run through the axis of the nerve for some distance behind the disc and then cross the subarachnoid space, the vessels in the dog are either cilio-retinal, or are only found in the substance of the nerve close to the disc and in front of the subarachnoid space. In no case do they cross it.

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[1] Obtainable from George Simpson and Co., 14, Market-place, Devizes. 2*s.*

[2] Finska Läkaresällskapets Handlingar, October, 1931.

[1] Brain, 1911, xxxiii, 389, 427.

[2] Brit. Jour. Ophthalmol., November, 1931, p. 609.

Incidentally Wolff and Davies make two observations of general interest. One is that in any obstruction of the circulation causing œdema the amount of fluid in each region of the retina will depend on the density of the structure of the particular region under consideration. At the disc the nerve-fibres are relatively loose and there is room for much fluid to collect between them. In those parts of the disc margin where more fibres emerge the swelling is greater than in those parts where the emerging fibres are comparatively few. The swelling will therefore first be visible where fibres are thickest —i.e., at the nasal border of the disc. The other observation is that the term "papilla" is a misnomer as applied to the normal disc. It was first so termed by a seventeenth century author under the impression that it was a projection into the interior of the eye; and this impression, although expressly termed erroneous by such an authoritative writer as Fuchs, is still fostered by most modern text-books of anatomy and physiology which describe the nerve head as a projection. This is an error and so it seems desirable to speak of optic disc rather than optic papilla and choked disc rather than papillœdema.

NEW IMPORT DUTIES.

SINCE our last annotation on the Abnormal Importations Act, Orders have been made by the Board of Trade extending the provisions of this Act to various kinds of hospital supplies. The latest Order (No. 3), which came into operation on Dec. 19th, imposes an ad-valorem duty of 50 per cent. on a short list of chemical products comprising citric acid, tartaric acid, cream of tartar, alum, and ammonium chloride. It was not anticipated that there would be an immediate advance in the prices of these chemical drugs, since large supplies of the imported materials were thought to be available, but already English makers of citric and tartaric acid have advanced their prices by approximately 25 per cent. The same Order places a like duty on illuminating glassware, and many of the articles essential for electric lighting. Thus imported incandescent filament lamps for 20 volts and over are now subject to duty as also are sockets, plugs, adapters, switches, fuse boards and boxes, shades, bowls and reflectors, and various other accessories of the kind used in interior electric lighting systems. Wireless valves, of which considerable quantities are used in hospitals, are also specified in the new schedule, so that these are now dutiable at the rate of 50 per cent. ad valorem on the top of the 33⅓ per cent. which was already imposed under the Safeguarding of Industries Act. Photographic cameras, which are also made subject to a 50 per cent. duty under the Order, were dutiable to a like extent under the Safeguarding Act, so that duty on imported cameras is now chargeable at the high rate of 100 per cent. Photographic paper, plates, and films, are now subject to a 50 per cent. duty. Another classification in the new schedule is "household cotton goods" which includes table linen, bed linen, and towels. Rubber-proofed tissues in the piece are also made dutiable on importation; presumably this classification comprises some of the kinds of noiseless floor coverings used in hospitals. What effect these duties will have on prices in due course it is difficult to foresee, but imports have been unusually heavy during the past few months and this fact should have an important bearing on the question of prices. An Order made subsequent to the one commented upon in our issue of Nov. 28th placed a 50 per cent. duty on glass bottles and jars. From the point of view of buyers of hospital equipment the most important of the articles affected by that Order are medicine bottles, opal glass jars, and vacuum glassware.

Sir John Gilmour, the Minister of Agriculture and Fisheries, has informed Dr. W. J. O'Donovan, M.P., that "it is not proposed, in connexion with the imposition of duties on certain horticultural products, to tax the raw materials of 'materia medica.'"

BRITISH POST-GRADUATE MEDICAL SCHOOL.

THE announcement in our columns last week that the authorities of the British Post-Graduate Hospital and Medical School were prepared to receive applications for the post of Dean indicates the advanced position which the scheme has reached. We are witnessing the actual commencement of a reform long overdue. For 30 years and more the necessity of a central post-graduate school of medicine in London has been recognised; many inquiries have been held, committees have sat, and ink has been freely spilt in the endeavour to bring about a working scheme. At length the acceptation by the Government of responsibility in the matter was secured, for it will be remembered that early in 1930 Mr. Greenwood, then Minister of Health, announced that the Government, acknowledging the value to the nation of an adequate system of post-graduate education in the metropolis, would contribute £250,000 towards the initiation of a scheme, and would follow this action by providing grants of maintenance such as were already made to other institutions of university rank. The scheme, which the Government then endorsed, consisted in the taking over of an existing public hospital, the Hammersmith Hospital, with its modern wards, comprising 400 beds. This institution on its transfer from the local guardians in the spring of 1930 became part of the hospital service of the London County Council under the Local Government Act, 1929, and the new medical school will be in conjunction with it. An element in the complete scheme, in addition to the hospital and school, had been a residential hostel for students, to be provided on a site in central London, and styled "London House." For the accomplishment of this part of the scheme the Government relied upon private benevolence, and we learn that the voluntary efforts of those interested have already brought London House into being. Four houses in Bloomsbury standing on part of a site purchased in 1930 by the Dominion Students' Hall Trust were converted and furnished to accommodate 30 men students, and became ready for occupation in October.[1]

As regards the hospital and medical school, the position last summer was that a provisional organisation committee under the chairmanship of Lord Chelmsford had been appointed to consider and report upon the action requisite to lead up to the planning and construction of the school, and the form of government appropriate to a hospital and medical school to which a Royal Charter would be granted. The Charter now entrusts the supervision of the building and equipment of the school, and its future management, to the following governing body, the nominating authorities being attached: Lord

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[1] Particulars of the terms for residence can be obtained on application to the Controller, Commander P. D. Crofton, R.N. (retd.), London House, Caroline-place, Guilford-street, W.C.1.

Chelmsford (chairman) and Sir George Newman (nominated by Minister of Health), Dr. Barrie Lambert and Mr. L. Silkin (London County Council), Mr. H. L. Eason and Prof. G. E. Gask (University of London), Mr. F. C. Goodenough (Dominions Office), Lieut.-Col. H. R. Dutton, I.M.S., retd. (India Office), Dr. A. T. Stanton (Colonial Office), Lord Dawson of Penn (Royal College of Physicians of London), Lord Moynihan (Royal College of Surgeons of England), Dr. Cecil Wall (Society of Apothecaries), Dr. Watts Eden (Royal Society of Medicine), and Sir Robert Bolam (British Medical Association). Dr. Louisa Martindale and Dr. F. N. Kay Menzies have also been appointed members of the governing body under a power of coöption vested in the governors by the Charter.

In the new financial situation not only the amount of money to be devoted to the scheme, but the question whether the country could afford the scheme at all, had to be reviewed with great care; and it is gratifying to learn that, notwithstanding the alteration in the state of public affairs since the financial basis of the scheme was first considered, the policy will be continued of contributing from public funds for the building and equipment of the school. The maximum of the grant which Parliament will be invited to vote for this purpose will, however, in view of the exigencies of the time, be £100,000 instead of the maximum of £250,000 previously contemplated. Since the scheme is founded upon the association of the medical school with a public hospital administered by the London County Council, the coöperation of the Council was essential, and that body proposes to assist by expending a capital sum equivalent to the Exchequer grant for the building and equipment of the school, that is not exceeding £100,000. It is not possible to say when the school will be opened to students; but the decisions of the Government and of the London County Council to treat the establishment of a post-graduate institution as an indispensable health service, and of the governing body of the school to appoint the Dean of the school forthwith, are welcome indications that a project which has for so many years been under discussion is now about to be realised.

RADIOGRAPHY OF THE EYEBALL.

NOT long ago it was noticed by D. Perotti[1] that in two cases of facial injury the eyeball became visible with X rays because it was outlined by a zone of transparency due to emphysema of the adipose tissue of the orbit. This visibility of the bulbus oculi he regards as an indirect sign of fracture of the orbital plate of the ethmoid, but G. Laschi[2] now reports a similar effect from another cause. A woman, aged 59, an inebriate with a negative Wassermann reaction but no other signs of progressive disease, was admitted into the ophthalmic clinic at Bologna complaining of headache and failing eyesight. There was marked atrophy of the left optic nerve and an early degree of the same condition on the right. In a radiogram taken in an occipitofrontal projection there could be seen in the left orbit a thin, regular, arched calcareous outline in the medial half of the orbit. The interpretation of this line was made possible by examining the head obliquely. At this angle a round shadow was visible, fairly opaque and of uniform density, occupying a considerable part of the orbital cavity, and easily attributable to the bulbus oculi. Nothing similar was seen on examination of the right orbit. The radiograms reproduced are compatible with the suggestion that there was a deposit of lime salts in one of the bulbar tissues. Although such a radiographic observation is quite exceptional, Laschi says that it is known to ophthalmologists that the sclerotic sometimes undergoes retrogression in its minute structure. F. Krekeler,[3] it appears, has noticed that about the sixtieth year there is a thickening of the fibres of the sclera, and sometimes a retrogressive change in these fibres as shown by the deposit of oily globules and calcium phosphate. These phenomena lead to a diminution of elasticity in the bulb, which may be an important pathogenetic factor in certain diseases of the eye, especially glaucoma. The rarity of the discovery and the fact that the opacity affected only one bulb in Laschi's case seems to show that the pathological process, in order to have a radiographic significance, must be far advanced. The case, however, indicates that X rays may occasionally be useful in revealing alterations in the eyeball.

MEDICAL SOCIETY OF LONDON.

THE programme of the Medical Society of London during the second half of the winter session has now been issued. It opens with a pathological meeting on Jan. 11th, after which, on the 25th, there will be a discussion on the Causation and Treatment of Essential Hypertension, introduced by Dr. Geoffrey Evans and Dr. G. Arbour Stephens. On Feb. 8th Mr. Harold Dodd and Dr. Arthur Davies will open a discussion on the Syndrome of Chronic Toxic Cholecystitis, and on the 22nd Dr. G. H. Oriel and Dr. G. W. Bray one on Asthma and Allied Conditions. Feb. 22nd and 29th and March 16th will be the dates of the Lettsomian lectures, which are to be delivered by Mr. F. A. Williamson-Noble, on the Reactions of the Eye to General Disease. The next discussion is on March 14th, when the principal speakers will be Dr. A. A. Osman and Dr. O. L. V. de Wesselow, and the subject Non-infective Arthritis. The last ordinary meeting will be devoted to the Diagnosis of Diseases of the Hip-joint, introduced by Dr. J. F. Brailsford, and the last fixture of the session is the annual general meeting on May 9th, when Sir James Berry will give the annual oration, his title being Fallen Idols. A conversazione will follow the oration, but there will be no other social functions. The annual dinner is being abandoned because of the present economic conditions.

Sir John Thomson-Walker has retired from hospital and private practice.

Dr. William Rees Thomas has been appointed a medical senior commissioner of the Board of Control in succession to Dr. Arthur Rotherham. Dr. Thomas has been medical superintendent of the Rampton State Institution for mental defectives since 1920.

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[1] Rass. internaz. di clin. e terap., 1930, xi., 623.

[2] Raduno dei Radiologi Veneti Emiliani e Toscani (Suppl. to Quaderni Radiologici), 1931, p. 26.

[3] Arch. f. Augenh., 1923, xciii., 144.

MEMORIAL TO THE LATE LORD MANTON.—A memorial to the late Lord Manton has been unveiled by his widow at Leeds Infirmary to which he gave £50,000 at a critical time in its history. Of this £10,000 was allocated to a pension fund for nurses. The memorial takes the form of a bronze plaque, designed by Mr. W. Wyow, placed in the main corridor of the hospital.

PANEL AND CONTRACT PRACTICE

THE THIRD VALUATION.

As the Government Actuary points out in his report[1] a position of some complexity is revealed in the third valuation of the assets and liabilities of the approved societies administering the benefits available under the National Health Insurance Acts. On the one hand there is shown an aggregate surplus impressive in its magnitude (nearly £36,000,000) sufficient to ensure the continuation of substantial additional benefits to a large proportion of the insured population. Moreover, as was the case on the second valuation, a considerable part of this surplus has been carried forward, thus strengthening the reserves of the societies concerned and, in regard to many of them, making it probable that they will be in a position to provide additional benefits after the fourth and subsequent valuations. On the other hand, there are certain features in the present situation which must be a cause of considerable anxiety. The claims for sickness and disablement, which, on the whole, had been light between 1915 and 1921, have in recent years risen to a level which in the case of men "precludes the expectation of any large amount of further surplus from savings in this direction and in the case of women, results in a loss of such dimensions as to call imperatively for measures of reconstruction."

CRITICAL POSITION OF THE WOMEN'S FUND.

To anyone familiar with the publications of the Government Actuary in the last few years, the critical position of the women's insurance fund comes as no surprise. Both in his official reports and in his less official utterances before the Royal Statistical Society and the Institute of Actuaries, Sir Alfred Watson has drawn attention in no uncertain manner to the excessive rise in claims to benefits, especially amongst married women.

The result as regards additional benefits is that for nearly three and a half million women, comprising 61 per cent. of the female insured population, all the extra advantages available in previous years must be withdrawn. Amongst a further million and a half women, or 29 per cent. of the female membership, the additional benefits must be reduced. They can be maintained or increased for only one-tenth of the female insured population. On the other hand, a substantial proportion, nearly one-quarter, of the male membership will be able to look forward to an increase in the additional benefits already available to them, while for a further quarter the same level will be maintained—benefits which in many cases are still considerably greater than anything which was envisaged when the scheme was originally framed. Only 9 per cent. of the male membership will suffer from a complete discontinuance of all additional benefits (as compared with the 61 per cent. of the female membership), but nearly one-half will have to face some reduction.

Even these figures do not show the full results of the differing experiences of the sexes. Societies and branches comprising 4,659,655 members still insure men and women in common funds, and there can be no doubt that among this section of the insured there are many cases in which the adverse experience of the women, and the consequent need to carry forward a substantial surplus, has curtailed the additional benefits of the men insured in the same funds. In equity separation of the funds is the only satisfactory course. That this course has been taken in many cases is shown by a comparison of the present report with that on the second valuation. The number of persons insured in funds restricted to members of one sex has largely increased, the present proportion of the whole number of members of societies so insured being 72 per cent. as against the figure of 46 per cent. given at the second valuation. Wherever a marked difference between the claims of men and women is observed this procedure should, in the opinion of the Government Actuary, be hastened.

Unfortunately, as regards women, the reduction or discontinuance of additional benefits is not sufficient. As regards the ordinary level of both sickness and disablement benefits the cost is at present considerably greater than the provision made for it. In these circumstances it is clearly necessary that the whole position in regard to the finance of women's insurance should be considered.

"Existing surpluses, in many cases, can only" he says, "provide a temporary bulwark, and serious deficiencies are in prospect. If therefore, present benefits are to be maintained, an increase of contributions is required; if the contributions are to be regarded as unalterable, a modification of the benefits is essential."

CHANGES NECESSARY TO RESTORE FINANCIAL SOUNDNESS.

The Government Actuary concludes that nothing less than one of the following alternative changes in the terms of women's insurance would restore financial soundness:—

(*a*) The present benefits being retained, the weekly contribution to be increased from the present rate of 8½*d*. to 10*d*

(*b*) The present contribution being retained, the rate of sickness benefit to be reduced from 12*s*. to 10*s*. per week, and the rate of disablement benefit from 7*s*. 6*d*. to 5*s*. per week.

(*c*) The present rate of sickness benefit being retained:

(i) the weekly contribution to be increased from 8½*d*. to 9½*d*.; and

(ii) the rate of disablement benefit to be reduced to 6*s*. per week.

The calculations leading to these results give no effect to the possibility that some amelioration of the position may result from the urgent representations in regard to certification and supervision which have been made recently to medical practitioners and to approved societies by the Ministry of Health and other departments concerned. It is too early yet to measure the effects of tightening up the administration and of the reduction of any possible laxity in certification.

But the position is too serious for these factors to allow any postponement of financial changes. To secure the sufficiency of the present contributions without change of benefits, a reduction of approximately 20 per cent. all round in the cost of the sickness and disablement benefits paid to women, on the average of the past few years, would be required. It is difficult to believe whatever success may follow the efforts now being made that it can be of this order of magnitude.

A considerable advantage has accrued to the approved societies through the falling birth-rate.

The claims to maternity benefit have been only 87 per cent. of expectation, in all a saving of a million and a quarter pounds between the two valuation periods. Another source of profit that has contributed appreciably to the surplus is the average rate of interest that has been obtained on investments. On the general average, interest has been realised at a rate well in excess of the 4 per cent. allowed for in the valuations. On the other hand, the aggregate receipts from contributions during the inter-valuation period have fallen seriously short of the valuation requirement—by nearly £7,000,000 or 6 per cent. In normal industrial circumstances, as these were judged when the financial basis of the Act was framed, the variations in sickness would constitute an important element in the profits and losses realised by societies in respect of contributions.

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[1] National Health Insurance. Report by the Government Actuary on the Third Valuation of the Assets and Liabilities of Approved Societies. Cmd. 3978. H.M. Stat. Office. 1931. 1s. 6d. net.

UNEMPLOYMENT THE DOMINANT FACTOR.

During, however, the whole of the period since the second valuation, at least as far as men are concerned, unemployment has been the dominant factor. The inevitable corollary has been a shortage of contributions, but a special analysis of the statistics relative to the cases of "apprehended deficiency" shows that this is not the only result of unemployment. Amongst workers in the coal mining industry there was a remarkable increase in claims during 1926, the year of the coal dispute. In one section, composed entirely of mine workers, the claims for sickness benefit in 1925 were £275,000. In 1926 the total rose to £441,000; in 1927 it fell back again to £265,000. The inference is drawn that in the seven months over which the dispute extended the claims for sickness benefit were at double the rate to which the societies concerned were accustomed.

The experience of the members in the two mining groups contrasts significantly with that of the whole population of insured men for the three years 1925 to 1927. It is estimated that in 1926 the cost of normal sickness benefit over the whole body rose by about 16 per cent. as compared with 1925 and in 1927 fell by about 3 per cent. only from the level reached in 1926. In the mining groups of the deficiency cases, the increase in 1926 was 60 per cent. and the fall in 1927 from the level of 1926 was nearly 40 per cent.

It is obvious that some special cause was vitally affecting the experience of these groups in 1926 and that, with the cessation of that cause the cost of sickness benefit fell to an even greater extent than general experience would have suggested. The major part of the fall in 1927 must have been the result of the cessation of the abnormal claims which so obviously were made upon the societies during the dispute. In other words prolonged unemployment does not result only in a deficiency of contributions, but tends to have a serious effect upon the claims to benefit.

Government Actuary's Conclusion.

Sir Alfred Watson concludes from this analysis that although the health of the population, as measured in terms of incapacitating sickness and disablement, is doubtless affected in some degree by economic conditions, it cannot be admitted to vary with them to such an extent as to explain the increase in the claims in recent years. On the other hand, it is conclusively shown by the results of the late survey of a sample of the claims by the medical staffs of the departments that causes of excess which are definitely controllable have been in operation.

"It is evident in the circumstances" he goes on "that serious tasks rest upon those responsible for the certification and for the supervision of claims. This is no new position. It has always been the case that the financial soundness of any system of sickness insurance depended largely upon the two factors of medical certification and administrative supervision of the claims. What is new is the fact that the lighter experience of a comparatively recent period has supplied a standard by which those who have to apply these factors may reasonably measure the results of their efforts. If this be fully realised and action shaped accordingly, and if, in the case of women, the special measures which the position demands be applied without undue delay the results should go for to uphold the financial strength of the system.

"There remain the difficulties created by the abnormal loss of contributions arising from the widespread unemployment by which the industrial community is afflicted. With great reluctance it must be suggested that the action taken in 1928, when costly concessions in respect of arrears of contributions were granted in cases of proved unemployment, may need reconsideration at an early date if a substantial improvement in the industrial situation does not emerge. The present position is that while full benefits are being paid to the great mass of the insured whose normal occupation is employment, less than 90 per cent. of the contributions required to support these benefits are being collected."

"Such a position," he concludes, "is wholly incompatible with the maintenance of the soundness of an insurance organisation. It may be endured for a time, especially by societies which, under more prosperous conditions, have accumulated surpluses, but even here a limit must be put to the burden. Unfortunately, the situation is to a large extent most acute among those societies which are least able to bear the strain, and on some of these it must press with special hardship."

THE SERVICES

ROYAL ARMY MEDICAL CORPS.

Commissions.—Twenty-five permanent commissions in the Royal Army Medical Corps are being offered to qualified medical practitioners, under 28 years of age. There will be no entrance examination, but candidates will be required to present themselves in London for interview and medical examination. At the same time, a certain number of temporary commissions under similar conditions as regards age and qualification will also be offered. Applications should reach the War Office not later than Jan. 18th, 1932. Further information can be obtained from the Under-Secretary of State, the War Office (A.M.D.1), Whitehall, London, S.W. 1.

Lt. (prov. Capt.) J. W. Kendall is placed on the half-pay list on account of ill-health.

TERRITORIAL ARMY.

Hon. Col. A. D. Ducat vacates the appt. of Hon. Col., R.A.M.C. Units, 56th (1st Lond.) Div., T.A., on completion of tenure.

Capt. M. R. Coolican resigns his commn.

Lt. H. A. Eccles to be Capt.

J. E. Flood to be Lt.

R. Woodside (late Offr. Cadet, Glasgow Univ. Contgt., Sen. Div., O.T.C.) to be Lt.

TERRITORIAL ARMY RESERVE OF OFFICERS.

The following officers having attained the age limit retire and retain their rank, with permission to wear the prescribed uniform: Lt.-Col. A. A. W. Merrick and Majs. J. Turtle and J. D. Wells. Capts. T. C. Clare and G. R. Girdlestone having attained the age limit relinquish their commns. and retain their rank.

Capt. A. W. Uloth, from Active List, to be Capt.

ROYAL NAVAL VOLUNTEER RESERVE.

Surg. Sub-Lts. D. N. Ryalls and W. H. Foy to be Surg. Lts.

Surg. Lt. (D) L. A. T. McLean to be Surg. Lt.-Comdr (D).

Prob. Surg. Lt. C. A. Mather to be Surg. Lt.

INDIAN MEDICAL SERVICE.

Lts. (T.C.) G. L. Kohli and V. V. Puri to be Capts. (T.C.).

The undermentioned officers retire: Lt.-Cols. H. S. Matson and T. W. Harley.

ROYAL AIR FORCE.

Dental Branch.—Squadron Leader R. H. Bebb, Major, Army Dental Corps, relinquishes his temporary commission on return to Army duty.

ROYAL AIR FORCE RESERVE.

Flight Lt. F. W. G. Smith relinquishes his commission on completion of service.

BIRMINGHAM HOSPITALS CENTRE.—The recent announcement of the executive board that it intended to "bring into existence at the earliest possible date the first instalment of the plan for creating the Birmingham Hospitals Centre" has been widely criticised in the city. The board is therefore arranging to call together at an early date the subscribers to the appeal fund "to discuss with them, fully and frankly, all the points which have been raised." Mr. Neville Chamberlain, Chancellor of the Exchequer, who was Minister of Health when the plan of the centre was first mooted, has stated that deeply as he would deplore the postponement of the scheme "common prudence seems to demand its suspension."

SPECIAL ARTICLES

KING EDWARD'S HOSPITAL FUND FOR LONDON.

A MEETING of this Fund was held at York House, St. James's Palace, on Dec. 11th for the purpose of awarding grants to hospitals and convalescent homes. The Prince of Wales, who presided, read the following message from the King:

> "The King desires to congratulate the Council of King Edward's Hospital Fund for London on being able to make a further increase in the distribution this year. His Majesty regards it as most important that the income of the King's Fund and the voluntary hospitals should be maintained at this time of crisis."

The present times, said the Prince, were especially difficult for the voluntary hospitals. Their work was indispensable and must be paid for. It had so far been paid for by the aid of voluntary contributions which had gone on steadily increasing, till in 1930 the remarkable total was reached of £2,900,000 a year in London alone, or £9,000,000 a year for the whole country. Never had it been more necessary than at the present moment that these contributions should not fall off. Those who had been accustomed to subscribe should go on if they possibly could. Those who had not subscribed in the past should come forward to take the place of those who could not continue to give as much as they did before.

INCREASE IN THE DISTRIBUTION.

In these circumstances it was particularly encouraging that the King's Fund was able to make another substantial increase in its distribution. Last year the ordinary grants were £266,000. This year they were £275,000. The grants in aid of the Pensions Scheme were a little over £19,000, of which £9,000 were to be taken from the special fund accumulated for the purpose. The total distribution was thus just over £294,000, of which £285,000 came from the current income of the year. This result had been greatly helped by four items in the receipts. Two of these he mentioned at the last meeting. These were the gift of £2000 from the Nizam of Hyderabad and £10,000 entrusted to the King's Fund by the British Charities Association for distribution amongst the London hospitals. The third was a further donation of £9000 from the anonymous friend whose gifts during the past few years amounted to no less than £63,000. The fourth was the legacy of £50,000 from the late Sir Otto Beit.

It was a remarkable fact that the amount received by the King's Fund in legacies during each of the past four years had been about £65,000.

Such large receipts in four successive years had enabled the Fund to make considerable increases in the distribution, without any departure from the paths of prudence. During 1930 the hospitals as a whole had done better than had been expected. The King's Fund Statistical Review showed more deficits than in the previous year, but these were still out-numbered by the surpluses.

He was glad to see that the report on the subject of patient's waking hours, published in May, was bearing fruit. The Ministry of Health had commended the suggestions of the King's Fund in this connexion to county and county borough councils throughout the country.

PAY-BED INSURANCE SCHEME FOR MIDDLE CLASSES.

The management committee of the Fund had issued a report dealing with the British Provident Association scheme, which had already had the approval of the Council, for assisting members of the middle and professional classes to make provision for the cost, when admitted to a pay bed at a voluntary hospital. The report gave striking figures of the success of the Hospital Saving Association, which performed a somewhat similar service for the ordinary hospital patients. It had nearly 1,000,000 members and payed about £388,000 a year towards their cost when in hospital. But with all such schemes there was always a difficult time at the beginning, when the contributions from members were small compared with the expenses. The donors who earmarked their gifts to tide the Hospital Saving Association over this preliminary period had been fully justified by the results. So successful, indeed, had been the Association, that it now found itself able to repay £5000 out of the £25,000 it received.

Another report dealt with the out-patient question, and a committee would be appointed to seek for remedies in connexion with overcrowding, hours of waiting, and other defects of the out-patient departments.

Before concluding his speech the Prince referred to the loss which the Fund had sustained by the death of Lord Knutsford and of Mr. W. J. H. Whittall.

FINANCIAL STATEMENT.

Mr. Montagu Norman (Governor of the Bank of England) in the unavoidable absence of Mr. E. R. Peacock, the Treasurer, said it was gratifying that the Council felt fully justified in making an increase in the ordinary distribution from £266,000 to £275,000. Besides the additional £9000 of ordinary grants, there was an increase of £2845 in the grants in aid of expenditure on the Pensions Scheme. Last year these came to £16,468. This year the total was £19,313. These grants, which began in 1928, were promised for the first seven years of the Scheme, the maximum in any one year being £20,000. During the past few years the Fund had been able, out of the receipts from legacies, to accumulate a special reserve fund against this liability. It was proposed to draw £9000 from this reserve fund, and to pay the other £10,313 out of current income. There would still be a special reserve of £51,000, and this would considerably reduce the amount that would have to be taken out of income during the rest of the period. On these estimates the result of the year's working would be that £294,313 would be distributed as against £282,468 last year; that £285,313 would be drawn from current income and £9000 from the special pensions reserve; and that about £25,000 would be carried forward to general reserve. The total addition to the capital fund and the general reserve fund, during the last four years, would then be almost exactly £260,000.

Lord Marshall, in making the annual statement, said that the Council of the League of Mercy would allocate to the King's Fund the sum of £17,000 from its collections.

Sir Cooper Perry, chairman of the distribution committee, presented the report on the distribution to hospitals (including recovery and convalescent same human source. Only in one of the nine human cases did the attempts to transmit the virus to monkeys fail. It was, however, found that the virulence of the material inoculated varied considerably, the less virulent strains dying out after two or three passages. There were also variations in the reaction of the monkeys; some died after having shown signs of meningeal involvement, while others remained apparently healthy. But when these latter were killed after 30 or 40 days, the post-mortem examination showed the characteristic changes, and the disease could be transferred from these monkeys to others. The virus seems to be filtrable, quickly destroyed at a temperature of 60° C., but able to survive a temperature of 2 to 3° for at least 10 days. Serological investigation also pointed to the specificity of the disease.

CANCER GRAFTS IN MONKEYS.

During the past three and a half years Voronoff has been making observations on the grafting of human malignant growths into monkeys.[1] At the laboratory of experimental surgery of the Collège de France, grafts have been made with 24 new growths, under strictly aseptic conditions and within an hour or two of the removal of the new growth. The ages of the animals ranged from a few months to several years, and they were experimented on under a variety of conditions such as pregnancy, menstruation, and general debility. Altogether 194 transplantations were effected, the technique corresponding closely to that adopted for the transplantation of the endocrine glands. It was found that the age and sex of the monkeys did not greatly affect the "taking" and survival of the grafts, the site of the graft being much more important; the best sites were the subcutaneous tissues, the muscles, the mammary glands, and the serous linings, the peritoneum *in particular*. The taking and survival of the grafts depended to a certain extent on the malignancy of the tumours, and the longest survival was observed in an atypical epithelioma of the breast, clinically and macroscopically endowed with a high degree of malignancy. Provided the grafting took place within a maximum limit of two hours, the length of the interval between the removal of the tumour and the grafting operation did not seem to matter. Interesting details are given of the three cases in which the grafts survived a long time and showed a tendency to extend locally.

THE LÜBECK TRIAL.

(FROM OUR BERLIN CORRESPONDENT.)

(Continued from p. 1320.)

THE trial slowly reaches its final stage. Before the experts were called Dr. Jannasch stated that some days after the disaster had been detected he and Prof. Deycke had seen that, in the incubator of the laboratory, tubes containing the B C G and others with human bacilli were in the same container. Prof. Deycke had been much alarmed by this fact and had discussed with him whether perhaps the tubes had been exchanged. Dr. Jannasch had answered that this was possible. On examination by the prosecutor Prof. Deycke agreed that the tubes could not be distinguished at first sight.

Prof. Lange, of the German Health Office, was then requested to answer the following questions:

Q. Would you, from a medical point of view, consider it negligence for a physician to disregard the request of the German Health Office issued in 1927 to postpone the introduction of the Calmette method until it had been approved by that office?—A. It would have been preferable to follow the request but I do not regard the omission as negligence.

Q. Were experiments in animals necessary before the B C G was administered to patients?—A. In Prof. Deycke's place I would have made such experiments in the interest of science and to become acquainted with the material.

Q. Was it necessary from the beginning to have the children under permanent medical control?—A. More thorough control would have been advisable to ascertain how the children reacted against the remedy.

Q. Were the children already damaged by the first doses or, provided that the emulsion contained virulent bacilli, was each of the three doses equally noxious?—A. If the child did not vomit, the first dose was sufficient to injure it but the following doses were able to increase the damage.

Q. Was it possible to cure the children who had already become ill or to prevent harm to those who without showing immediate symptoms of illness had already received the emulsion?—A. The only therapy was to prescribe for the children tonics to enable them to bear the noxious action of the emulsion. In that direction everything possible had been done in Lübeck.

After this rather favourable opinion the second expert, Prof. W. Kolle, said that in Lübeck there was no urgent necessity to introduce the Calmette method for all the new-born children. It would have been better to administer it only to infants from tuberculous families. Before introducing the B C G Dr. Altstädt should have applied to the German Health Office. He and the members of that office were of opinion that the method was innocuous provided that the remedy was prepared in a special laboratory under strict control by an efficient staff. But though innocuous the immunising response of the method had a duration of at most 12 months. Prof. Ulenhut concluded his opinion by saying that the German Health Office had provided against similar mischances by a regulation that henceforth every new vaccine or serum before being administered to patients must be tested in the Health Office. Prof. Abel, late head of the Hamburg Health Office, said that Dr. Altstädt had been wrong in not informing the Lübeck authorities until May 6th when the first evidence of damage to infants was observed on April 26th. The opinion of the Lübeck physicians that the first child had suffered from hereditary tuberculosis proved to be a fatal error, as it prevented the physicians from stopping at once the administration of the emulsions. Several weeks later post-mortem examination showed that the infant had died not from congenital but from a tuberculosis acquired through the emulsions.

Prof. Bruno Lange, of the Robert Koch Institute, giving expert opinion, said that although the immunising effect of the Calmette method is of rather short duration, it is nevertheless the best method hitherto known. According to the general opinion of the scientific world the method is innocuous as shown by the results obtained in other countries. B C G vaccine does not do any harm to infants provided it is prepared and administered with caution. He must however state though reluctantly that this was not the case in Lübeck. Prof. Deycke is certainly an eminent physician, but he was interested more in clinical than in bacteriological work and had for that reason given more independence to his technical assistant, Nurse Schütze, than was usually the case in laboratories. That her bacteriological training was insufficient had been shown during the court's visit to the laboratory. Several drawbacks were observed there. The laboratory was accessible to other hospital people who had no business there. The incubator used for the B C G cultures was not spacious enough; its temperature could not be regulated reliably. Paper labels were used instead of inscriptions on the tubes, rendering exchange possible. There were no records from which it could be stated which particular emulsion was given to a particular child on a particular date. It was improper for the B C G cultures to be prepared in the same laboratory with virulent bacilli and with the Deycke-Much partigens. Prof. Lange felt that while the laboratory was fit for the usual hospital work it was not sufficiently equipped for the preparation of B C G cultures. A special laboratory and a specially trained assistant were required. It was wrong not to follow the prescriptions of Prof. Calmette and to use an albuminous medium for the cultures before the original method was tried. Prof. Deycke must be held responsible for the condition of the laboratory and for the work done there, although it would have been the duty of Dr. Altstädt to make inquiries from time to time.

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[1] Voronoff, S., and Alexandresco, G.: Echos de la Médecine, Nov. 15th.

Asked by Deycke's counsel whether it was his duty to make animal experiments, Prof. Lange said that since, when the cultures had arrived from Paris, Prof. Deycke had had no experience of B C G, it would have been better if he had made such experiments. This became urgent as soon as any doubt about the emulsions arose in his mind; at that moment the distribution of the tubes ought to have been stopped. Prof. Schmincke, another expert, criticised the organisation of the Lübeck Health Office. The chairman of that office was not officially informed of the disaster before May 6th, although the news of it had been current in the town several days earlier.

PUBLIC HEALTH SERVICES

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are 1930 statistics of four counties.

Name of district and estimated mid-year population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Respiratory diseases with influenza.	Heart disease.	Infant and neonatal mortality.	Young child (1–5 yr.) mortality.	Maternal mortality in childbirth.
Essex .. .. (1,110,400)*	16·8	9·9	0·75	1·39	1·0	1·9	45/	22	4·8
Northamptonshire .. (217,550)†	13·7	11·4	0·83	1·64	1·3	2·2	42/24	24	1·3
Leicestershire . (295,300)*	17·0	10·4	0·75	1·35	1·2	1·9	55/	15	3·4
East Sussex .. (271,800)†	12·9	12·1	0·72	1·95	1·1	2·8	39/	14	4·6

* 1929 estimates. † 1930 estimates.
Registered stillbirths per 100 live births: Essex, 3·6; Northamptonshire, 3·7; Leicestershire, 3·6; East Sussex, 3·8.

Essex.

Dr. W. A. Bullough says that the recent census shows the population to be 1,198,001, and to have increased by 278,460 since the 1921 census. The birth-rate and the death-rate per 1000 of the population, calculated as they are on the 1920 population, are presumably about 7 per cent. too high. Under the Local Government Act the county council took over eleven public assistance institutions with 3670 beds, about half of which were for the able-bodied. There are also in force agreements for using about 2000 beds in institutions outside the county, including West Ham. The West Ham and *Romford* infirmaries are essentially general hospitals, but in the rural areas most of the institutions are mixed. Increase of hospital accommodation will be needed. Three of the institutions will be used for the reception of tuberculous patients and nine for maternity cases. Bacteriological facilities will be extended to the public assistance institutions and the services of the orthopædic surgeon will be available for public assistance patients. Improvements and alterations have been sanctioned at Children's Homes, and the 130 boarded-out children are to be supervised, in some areas, by a part-time salaried officer and in others by voluntary visitors. Much expenditure, says Dr. Bullough, will be required in connexion with public assistance institutions, isolation hospitals, and mental deficiency institutions, in addition to extensions in sanatoriums.

Mild small-pox was markedly prevalent, the notifications in 1930 being 602 compared with 69 in 1929. Small-pox was mentioned on one death certificate but death was really due to diphtheria. Dr. Bullough is of opinion that the present method of inefficient compulsory vaccination should be given up, and voluntary vaccination, supported by a steady educational campaign, substituted.

In April a new sanatorium at Black Notley was opened; this is admirably planned and equipped, and provides 184 beds for women and children suffering from pulmonary and non-pulmonary tuberculosis. The lack of accommodation for advanced cases has been met by securing beds for men at the Liverpool-road Fever Hospital, and for women at the Oldchurch public assistance hospital, Romford. Four antenatal clinics have been established. District nurse midwives have been provided through the agency of the County Nursing Association for most of the parishes, and provision of small motor-cars will enable the nurses to cover the residue.

The total of cottages in Essex reconditioned under the Housing (Rural Workers) Act, 1926, up to Dec. 31st, 1930, was 168. There is no routine veterinary inspection of dairy herds, activities being confined to taking milk samples. One lot of samples were taken from the areas of the Colchester and Southern Guardians Committees. Of 417 samples 25, or 5·6 per cent., were tuberculous. Another lot of samples were taken from central dairies or in course of delivery. Of 342 of these, 53, or 13·4 per cent., were tuberculous. Nearly a quarter of the samples failed to comply with a reasonable standard of cleanliness. When investigating complaints, the veterinary surgeon discovered ten tuberculous cows at six farms but none at eight farms.

Out-patient clinics for early mental cases are provided at Oldchurch Hospital and at the Essex County Hospital, Colchester.

Northamptonshire.

Dr. J. M. Mackintosh shows that the county council have already made ample use of their powers under the Local Government Act, 1929. Nine poor-law institutions have been taken over. Hardingstone had not been used for some years for poor-law patients and it may be reserved for use in the event of an outbreak of minor small-pox. Kettering, Oundle and Wellingborough institutions have separate infirmaries and will be retained as public assistance institutions. Thrapston also has a separate infirmary and has been appropriated by the public health committee for advanced tuberculosis. Of the four western institutions, new wards will be provided at Daventry for the chronic sick and the aged and infirm, and Brackley, Brixton, and Towcester will probably not be used. Arrangements have been made for the voluntary hospitals in the county to deal with acute cases for the public assistance department, though provision will be made for emergency cases in the municipal public assistance institutions. It is intended to concentrate maternity accommodation at the Kettering institution, where a home for infants under 3 will also be established. The accommodation of cases of mental disability cannot be reorganised until the new institution at Bromham is ready to receive patients. Epilepsy, it is considered, can best be dealt with by an ad hoc combination of a large number of authorities. Manfield Orthopædic Hospital has established a chain of seven clinics throughout the county. There is close coöperation between the public health and public assistance departments in all medical matters.

The Nursing Associations are under the supervision of the County Association, the superintendent of which has her offices on the premises of the health department. Midwives attended 64·2 per cent. of the total births. Antenatal supervision will be provided for primiparæ and multiparæ, who have had previous trouble in pregnancy or confinement, under a scheme for enlisting the services of general practitioners. Of 400 milk samples, 38 were deficient in fat in amounts varying from 3·7 per cent. to 31 per cent. In some cases the deficiency was due to improper milking of the cows, and in one case of a 10·6 per cent. deficiency it was ascertained that the vendor only partly milked some of the cows and left the strippings for the calves.

Dr. Mackintosh expresses the opinion that compulsion under the Vaccination Act, being merely nominal, is practically useless. Diphtheria was nearly twice as prevalent as in the previous year, the case-fatality being 4·3 per cent. as against 5·7 per cent. In the autumn there was a fairly extensive outbreak of epidemic catarrhal jaundice in Polebrook. Twenty of the 42 cases were school-children, and few children in an affected household escaped the disease. There was some reason to suspect that polluted water was the source of infection. Jaundice appeared on the fifth day, and the symptoms of illness had almost disappeared when the jaundice was observed.

There is a remarkable lack of uniformity in the standards adopted in the various rural district councils in regard to housing conditions. Dr. Mackintosh stresses the fact that many of the houses can be reconditioned at a comparatively small cost. Most of the towns have now an adequate supply of good water, but there is real need for a larger combination of villages to secure an adequate piped supply.

Leicestershire.

Dr. J. A. Fairer reports that mild small-pox which began in July, 1929, prevailed throughout 1930. There were 556 notifications and probably many missed cases. During these two years 83 vaccinated cases were admitted to hospital, but no case of small-pox has occurred in anyone vaccinated within the last 29 years. Two deaths were recorded, one of an infant and the other of a person over 65 years of age.

In the transferred poor-law institutions there are 406 beds available for the chronic sick. Many of the institutions transferred are unsuitable for cases of acute illness. Dr. Fairer is confident that the institutional services of the county can be made both efficient and adequate, but considerable outlay will be necessary. County patients are received into three general hospitals and six cottage hospitals without subsidy from the county council, but subsidies are paid to various hospitals for maternity beds. For the orthopædic scheme three base hospitals and several clinics are in use, and every effort is made to secure coördination and continuity of treatment. The school medical service and the maternity and child welfare service are well linked up.

As a preliminary to tackling the housing question the rural districts have prepared schedules of each individual parish. A scheme was initiated by the agricultural department for the supply of Grade A milk in bottles containing one-third of a pint at the price of 1*d.* to the scholars at one school, and has become so popular that it is being extended to other schools, in coöperation with the health department which arranges for the regular testing of the milk.

East Sussex.

Dr. R. Ashleigh Glegg is enthusiastic about the advantages of employing the district nurse-midwives to act as health visitors. Their teaching can be more intensive, he thinks, than that of the whole-time health visitors. In future, nurses who have had a three years' training will be offered a further training in midwifery and health visiting, if in return they will undertake to act as district nurses for a period in the county. Under this system antenatal supervision was available for 83 per cent. of the mothers; and these district nurses atended 1424 confinements with only three deaths—a maternal mortality of 2·1 per thousand births. Every parish now has the service of a district nurse-midwife. A consultant is available for the doctors in case of complications during pregnancy and at or after confinement. The dental surgeons report very bad dental conditions among the expectant and nursing mothers, and there is still prejudice against dental treatment during pregnancy. There were ten notifications of ophthalmia neonatorum, and one case resulted in blindness of both eyes.

The ten poor-law institutions transferred are all of the "mixed" type and their classification is under consideration. The county council have made a declaration which takes children, mental defectives, and blind persons out of the poor-law. The five district nursing superintendents and the district nurses have been given the supervision of board-out children. Of the eleven isolation hospitals five are unsatisfactory, since only one disease can be isolated at a time. It is intended to reduce their number. Dr. J. R. Dingley, medical superintendent of the county sanatorium, complains that insufficient use is made of the diagnostic facilities at the sanatorium. A large percentage of cases would benefit from "collapse" therapy if they could be brought under treatment earlier. Operations for pneumothorax are carried out at the sanatorium, and the establishment of a clinic at Lewes for refills has proved a great convenience.

The inspections of dwelling-houses under the regulations show a decrease for the year. Several investigations have been made on behalf of the county council into defective housing conditions. Up to the end of 1930, grants amounting to £2060 had been made in respect of 16 applications under the Housing (Rural Workers) Act. The county council has decided to make no contributions for the present towards the provision of water-supplies, &c., for county districts. Dr. Glegg recommends that clinics should be established to secure the early diagnosis and treatment of rheumatism and cancer.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED DEC. 12TH, 1931.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 48 (last week, 57); scarlet fever, 1776; diphtheria, 1002; enteric fever, 40; pneumonia, 1309; puerperal fever, 46; puerperal pyrexia, 99; cerebro-spinal fever, 29; acute poliomyelitis, 6; encephalitis lethargica, 13; dysentery, 39; ophthalmia neonatorum, 80. No case of cholera, plague, or typhus fever was notified during the week.

Of the 39 cases of dysentery, 21 were reported from the rural district of Wincanton, Somerset.

The number of cases in the Infectious Hospitals of the London County Council on Dec. 15th–16th was as follows: Small-pox, 107 under treatment, 2 under observation (last week 112 and 3 respectively); scarlet fever, 1492; diphtheria, 1555; enteric fever, 8; measles, 477; whooping-cough, 433, puerperal fever, 16 (plus 11 babies); encephalitis lethargica, 223; poliomyelitis, 3; "other diseases," 185. At St. Margaret's Hospital there were 13 babies (plus 7 mothers) with ophthalmia neonatorum.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 2 (0) from enteric fever, 29 (12) from measles, 8 (2) from scarlet fever, 36 (9) from whooping-cough, 32 (6) from diphtheria, 54 (16) from diarrhœa and enteritis under two years, and 115 (15) from influenza. The figures in parentheses are those for London itself.

The fatal cases of enteric fever occurred at Great Yarmouth and Leicester. Four deaths from measles were reported from Stoke-on-Trent, 3 from Liverpool, and 2 from Bolton. Birmingham and Liverpool each reported 4 deaths from whooping-cough; Birkenhead, Bury, Manchester, Gateshead, and Newcastle-on-Tyne, each 2. Diphtheria claimed 7 victims at Hull, 3 at Birmingham, 2 each at Leeds and Swansea. Diarrhœa was credited with 5 deaths at Stoke-on-Trent; 4 at Manchester. The fatal cases of influenza were reported from 40 great towns, the highest numbers being in Liverpool, 11; Luton, Preston, Blackpool, and Sheffield each 4.

The number of stillbirths notified during the week was 275 (corresponding to a rate of 44 per 1000 births), including 51 in London.

MENTAL HOSPITAL REPORTS.

The DERBY BOROUGH MENTAL HOSPITAL had 510 patients on its registers on the last day of 1930, and 521 on the day of its annual meeting, May 6th, 1931. During the calendar year there was a recovery-rate of 30·86 per cent. and a death-rate of 7·42 per cent. Autopsies were performed in 36 out of 38 cases. The general health was satisfactory and the only infectious disease was a couple of cases of scarlet fever. Nine patients were under treatment for pulmonary tuberculosis. The growing pressure on accommodation is being met by the immediate erection of a nurses' home, which will release beds for 25 or 30 patients; later a reception hospital for 25 men and 30 women is intended. The committee has also approved plans for convalescent villas, to take about 40 of each sex. Voluntary rate-aided patients are to be received at present in the existing wards, and an out-patient clinic is to be opened shortly at the Derbyshire Royal Infirmary. The committee also houses a number of mental defectives at the Thornhill Institution, and a branch of the Mental Welfare Association is to be founded in Derby to deal with mentally defective children and to coördinate the work of the out-patient clinic and the mental hospital. A considerable number of patients enjoy parole and two wards are open to the grounds. Five nurses obtained the R.M.P.A. certificate during the year, bringing the percentage of certificated staff up to 60 on the male side and 37 on the female side.

There were 915 patients in the DORSET MENTAL HOSPITAL on Dec. 31st, 1930. The recovery-rate for the year was 56·09 per cent. and the death-rate 9 05 per cent. There was no epidemic disease except for occasional mild influenza. Four patients of each sex suffered from pulmonary tuberculosis. Over 50 patients are employed on handicrafts and their work is so good that many certificates have been won and the department is more or less self-supporting. For the first time in its history the hospital has this year printed its own report, and the result is an excellent testimonial to the standard of the work. The dentist visited once a fortnight and saw 150 patients during the year. The pathologist carried out 2716 investigations, including the necessary research on dysentery and typhoid carriers. The Meinicke micro-reaction was used for syphilis. A systematic leucocyte study has been made and the results are to be published shortly. The out-patient clinic at the Dorset County Hospital, Dorchester, is held every Saturday, and another clinic has been opened at the Cornelia Hospital, Poole. The honorary consulting surgeon has, among other services, operated on typhoid carriers with entirely satisfactory results.

The INVERNESS DISTRICT ASYLUM had 752 residents on May 15th, 1931. The recovery-rate for the year was 26·9 and the death-rate 12·5 per cent. The general health was good, but there was an outbreak of measles in the summer and of influenza in the following spring. The deaths were mainly due to senile decay and phthisis, these two causes accounting for over 60 per cent. of the fatal cases. The male patients have done a great deal of work on the buildings and gardens and a number of improvements have been carried out. The medical superintendent submits a report showing that the present overcrowded state of the institution and the inevitable admixture of cases of mental deficiency and dementia præcox (which are being admitted in increasing numbers) constitute a serious risk to the patients. Four patients have parole beyond the grounds and 14 within them. A nurses' home is urgently needed and is to be erected soon. During the year eight nurses and nine attendants obtained their R.M.P.A. certificate and five nurses passed the final examination in mental nursing of the General Nursing Council for Scotland.

Institution for the Mentally Defective.

At the COLESHILL HALL COLONY, BIRMINGHAM, there were 178 patients on Dec. 31st, 1930. This colony was opened on March 28th, 1930, and the report therefore deals with the first nine months of its career. The men came from various trades, the majority being unemployed, labourers, errand boys, or factory workers. The women were nearly all domestic servants or factory workers, if employed at all. The ages ranged from 16 to 55. Some of the cases were notified by the education authority and some by the police, and 15 of the women had had 22 illegitimate children between them. Ninety per cent. were primary *aments*, the majority being imbeciles. Over 80 per cent. were in good physical condition on admission and the general physical health was good during the period under review. A visiting dentist and eye specialist have been appointed. Great attention is paid to diet, and the report includes an interesting diet-sheet drawn up by the medical superintendent. The chief industries are dress-making, carpentry, boot-making, brush-making, and knitting. Minor handicrafts are also taught, and the upkeep of the institution affords a good deal of work. The general conduct on the whole has been good although half the patients have been classified as "troublesome." A Girl Guides' company and a Boy Scouts' troop have been started, and games have played an important part in the life of the institution. Three male and two female nurses hold the R.M.P.A. certificate; one male nurse holds the certificate of the G.N.C. and one female nurse is general trained and has her C.M.B.

HOSPITAL COÖRDINATION AT BRIGHTON.—The governors of the Royal Sussex County Hospital last week unanimously passed a resolution which involves approval in principle of the scheme for coördinating its work with that of the Sussex Eye Hospital. Under the scheme the Eye Hospital would be transferred from its existing premises in Queen's-road to a new building to be erected on land opposite the Royal Sussex Hospital. The project has already been approved by the governors of the Eye Hospital. It was stated that "every medical man connected with the two hospitals has given his blessing" to the scheme.

have been aborted, it has usually been carried out surreptitiously, under unfavourable conditions, or by incompetent persons. Hence the mortality and morbidity statistics obtained up to the present afford little indication of the results which might be obtained if healthy women were aborted under proper surgical conditions. Russia's experience, since the legalisation of abortion, makes it manifest that the risk can be reduced to a minimum. In Russia no surgeon is allowed to draw any financial gain from the interruption of pregnancy, and the operation may be performed, without medical indications, simply at the wish of the patient, but only in State hospitals. In spite of an apparently large increase in the number of abortions, the mortality and morbidity have sunk to an amazing degree. I say apparently large because it is impossible to determine how much of the increase is real, and how much is to be attributed to the substitution of a frank and legal operation at the hands of a competent surgeon for the surreptitious bunglings of an incompetent *faiseur d'anges* of the previous epoch.

The surgical sterilisation of men is a trivial operation which may be carried out under a local anæsthetic in the out-patient department of a hospital, though I personally have always preferred to use a general anæsthetic, and to keep the patient in bed for 24 or even 48 hours. That "the surgical sterilisation of women involves the inevitable risks of laparotomy" is true, but these risks are not at all considerable in the hands of any competent surgeon at the present day; and it must be remembered that, if no pathological condition is present, they are reduced to a minimum.

Finally, I may draw attention to the elaboration on the Continent of a new method for the interruption of pregnancy. This consists of the introduction into the uterus of an antiseptic paste. No dilatation of the cervix is usually necessary; the paste is introduced by a syringe and cannula; and miscarriage usually follows within 48 hours. The method was described by Dr. J. Leunbach, of Copenhagen, at the Third International Congress of this League in London, 1929, and is to be found in the published Proceedings. It is more fully described in the Proceedings of the Seventh International Birth Control Conference, Zurich, 1930, and in those of the fourth Congress of this League, Vienna, 1930. My own experience of this method extends over a considerable period, though my cases are not yet sufficiently numerous to make me feel justified in saying more than that I am convinced that, in general, the new method is an improvement on all former methods of interrupting pregnancy, and that for pregnancies over eight weeks it is immeasurably superior.

I am, Sir, yours faithfully,
NORMAN HAIRE, Ch.M., M.B.,
Co-President, World League for Sexual Reform.
127, Harley-street, London, W., Dec. 19th, 1931.

THE MEANING OF RUBEOLA.

To the Editor of THE LANCET.

SIR,—The term "rubeola" is not in common use in this country, but on the continent it is used as a synonym of rubella (German measles). It is somewhat confusing to find that of two modern monographs in English on infectious diseases, one gives it as a synonym of measles, and the other of German measles. It is not mentioned in the Nomenclature of Diseases (fifth edition). In the International List of Causes of Death (1931) it is given as a synonym of measles, but in the Suggestions to Medical Practitioners it is stated that "the term is best avoided, as it is used for both measles and German measles."

I would suggest that it should be regarded as a synonym of rubella.

I am, Sir, yours faithfully,
H. LETHEBY TIDY.
Devonshire-place, W., Dec. 16th, 1931.

HIGH HEELS.

To the Editor of THE LANCET.

SIR,—Dr. Chapman states: "Mr. Roth says that high heels do not project the weight of the body to the fore part of the foot to a greater extent than low heels." Dr. Chapman says that, when standing still, the weight distribution is not disturbed, but, when walking, that high heels do project the weight to the fore part of the foot. In this discussion I should like to draw attention to the classical example of the leaning tower of Pisa. We are told that it does not fall because the centre of gravity still falls within the base. Let us try to visualise a human being as a block of wood about 5 to 6 ft. high and about a foot square. If we insert a wedge 2½–3 in. (high heel) in height at the back it will be readily understood that the centre of gravity moves forward. The larger the wedge inserted, the further forward the centre of gravity moves. If a large enough wedge is inserted, the centre of gravity will fall in front of the base altogether and the block will topple over. A human being wearing high heels makes muscular adjustments in the endeavour to keep the centre of gravity in its natural position within a shortened base. Many "sore" backs are undoubtedly the result of this attempt. When the muscles begin to flag we are left with the tilting, whether walking or standing, and the centre of gravity moves forward. In short, more weight is thrown on the fore part of the feet.

I am, Sir, yours faithfully,
VYNNE BORLAND,
Dec. 18th, 1931. M.O.H., Bethnal Green.

INSULIN FOR RHEUMATOID ARTHRITIS.

To the Editor of THE LANCET.

SIR,—The article by Dr. F. D. Howitt and Dr. W. F. Christie in your issue of Dec. 12th (p. 1282), confirming the value of insulin in rheumatoid arthritis, is very valuable testimony to the efficacy of this method, and as resident medical officer to the Royal Mineral Water Hospital, I am in a position to subscribe to the desirability of a high caloric diet, ultra-violet radiation, and other therapeutic measures to raise the power of resistance in the active stage of rheumatoid arthritis. One is sure that neither Dr. Howitt nor Dr. Christie means to imply that the giving of insulin is a new departure in the treatment of this disease, but as they make no reference to this I venture to point out that the method was referred to by Dr. Vincent Coates in the *British Medical Journal* (1928, ii., 9), and again in the December number of the *Practitioner* of the same year. On referring to the case sheets I note that as far back as 1927 I was ordering insulin for Dr. Coates's cases, and in his wards to-day it is almost routine for me to plan a high caloric diet with ultra-violet radiation in selected cases, often with insulin and other therapeutic measures to act as a metabolic fillip. Reference to diet and insulin is made in a recent book, "Rheumatoid Arthritis and Its Treatment," by Dr. Vincent Coates and myself.

I am, Sir, yours faithfully,
LEO DELICATI.
Bath, Dec. 14th, 1931.

OBITUARY

JAMES ALEXANDER LINDSAY, M.A., M.D., F.R.C.P. Lond.,

EMERITUS PROFESSOR OF MEDICINE IN THE QUEEN'S UNIVERSITY OF BELFAST.

We regret to record the death of Prof. J. A. Lindsay which occurred on Dec. 14th in Belfast from cerebral thrombosis.

James Alexander Lindsay was born in 1856 at Lisnacrieve House, Fintona, Co. Tyrone, the son of David Lindsay, the founder of a well-known Belfast business house; one of his direct ancestors was the physician, Alexander Lindsay, who was killed during the famous defence of Derry in 1688. He was educated at the Royal Academical Institution and the Methodist College, Belfast, and later pursued his courses in arts and medicine in the Queen's College, Belfast, winning the gold medal in ancient classics at both his B.A. and M.A. graduations. He qualified M.D., M.Ch. in the Royal University of Ireland in 1882, and after two years, spent largely in post-graduate study in London and on the Continent, he was appointed assistant physician to the Royal Victoria Hospital, and in 1888 full physician. In this position he soon earned, and retained till his death, his great reputation as clinician and teacher. In 1897 he acted as special commissioner for The Lancet to investigate the hygienic conditions of Sicily and in the same year was elected President of the Ulster Medical Society. In 1899, on the death of Prof. James Cuming, Lindsay was appointed to the chair of medicine in the Queen's College, Belfast, which he occupied for 24 years. He was elected a Fellow of the Royal College of Physicians of London in 1903 and delivered the Bradshaw lecture before the College in 1909 on Darwinism and Medicine. The Lecture, which was published in The Lancet, 1909 (vol. ii., p. 1327), was a full and lucid exposition of the Darwinian doctrines in relation to normal human structure, disease, and racial problems.

DR. J. A. LINDSAY.

[Photograph by Elliott & Fry.

Lindsay devoted special attention to the diseases of the chest. His book on "The Climatic Treatment of Consumption" was one of the first books to deal with that aspect of the disease, and "Clinical Lectures on Diseases of the Lungs" was filled with sound and practical clinical observations. His "Medical Axioms, Aphorisms, and Clinical Memoranda" were published in 1923 in response to many requests from former students. He also wrote many articles not only for the medical journals but also on philosophical, theological, and social subjects. He was engaged when overtaken by illness on a history of the Belfast Medical School. He was a fine man of letters, and we were fortunate at The Lancet in having him for many years as a colleague.

In the University his lectures were extremely full and painstaking and kept the medical student abreast with the development of medical science. Their literary style was noticeable. He deprecated any short cut to diagnosis by instrumental or laboratory methods until a full history and clinical examination had been carried out. He shone as a clinical teacher and in this field he did his greatest work. His clearness of vision and accuracy of diction rendered his instruction of rare quality and worth to the student. As an examiner he had the faculty of giving the student confidence, of allaying nervousness, and of extracting the best from the candidate. His services were eagerly sought by other medical schools and he acted as extern examiner in the Royal University of Ireland, in Trinity College, Dublin, and in the Universities of Manchester and Leeds. It is no lip service to say that he was immensely popular with his students. His favourite axioms were constantly on their lips and when the Queen's University graduates formed their association in London he was one of the first presidents.

Prof. Lindsay retired from the acting medical staff of the Royal Victoria Hospital in 1921, but was shortly afterwards appointed chairman of the board of management, so that he was for nearly 50 years in the active service of that institution. He was elected President of the Association of Physicians of Great Britain and Ireland in 1927, an honour of which he felt justifiably proud. He took a leading part in the creation of the Belfast Dental School and in the building of the New Maternity Hospital. His love for literature and philosophy was recognised by his election as President of such bodies as the Belfast Literary Society, the National History and Philosophical Society, and the Linen Hall Library, Belfast. Many of his happiest hours were spent in his library at Queen's Elms among his books, for he was a genuine scholar and deeply read in philosophy, theology, and classics. Systematic in his reading as in all his actions, he kept small cards on which he copied any thought which struck him. These he periodically sorted and filed and the latest book from his pen, "Among the Thinkers" was the fruit of this habit. During his last illness he read with great enjoyment Sir Humphry Rolleston's life of Sir Clifford Allbutt and it was significant that it was Allbutt the scholar, rather than Allbutt the physician which he the more admired. Music was one of his passions and in music he found ever his deepest relaxation and keenest emotion. He was also an expert at the compilation of a menu or the choice of a wine. A very good dinner, a very good vintage, a few congenial guests, a pleasant chat enlivened by literary anecdotes exhibited to his intimate friends a very human, kindly, and understanding host.

Dr. S. I. Turkington, assistant physician, Royal Victoria Hospital, Belfast, has sent us the following estimate of Prof. Lindsay: "He had, above all, the judicial type of mind, and would have risen to eminence on the Bench. He wa [illegible] weighing evidence, quick to grasp [illegible] very

NOTES, COMMENTS, AND ABSTRACTS

OUT-PATIENT PSYCHIATRY.

BY C. STANFORD READ, M.D. LOND.,

CLINICAL PSYCHOLOGIST TO THE WEST END HOSPITAL FOR NERVOUS DISEASES; LECTURER IN PSYCHOLOGICAL MEDICINE TO THE ROYAL BETHLEM HOSPITAL.

IN speaking of psychiatry, I am using the term in its broad sense and with the connotation that it should have. Under such a heading should be included all that is concerned with mental disorder whether it is psychoneurotic or psychotic in nature, whether it is regarded as "functional" in origin or founded upon some somatic and organic derangement. This point is stressed at the outset because it is highly important, when such a progressive movement as out-patient clinics in mental medicine is taking place and being developed, that psychotherapy should not be considered as something apart and distinct from the wider aspect of psychiatry as a whole.

The problems that beset the physician in such circumstances are all embracing. They range from the simplest maladaptations to situation and environment to the most intricate psychotic conditions where manifold factors of body and mind take their part. Hitherto the workers in the field of mental medicine have been far too departmental, and we must look forward to the time when their breadth of knowledge and viewpoint will be considerably widened.

It is, perhaps, somewhat appalling to contemplate how extensive the education and experience of a well-equipped psychiatrist should be. Though it is true that in any circumstances his personality is of great moment, it is in the domain of the out-patient clinic that it becomes of paramount importance. Here, where the time factor is a matter of special consequence, the capacity to get "en bon accord" with the patient so that he is encouraged to unburden himself and speak freely of his symptoms and inner life, is an asset that no amount of training can achieve. It is probable, though, that in the majority of instances the youthful medical practitioner who adopts this branch of medicine will mainly do so through an inherent interest in the subject, and, provided that he is not unduly educated towards a purely materialistic basis of mental ills, he will tend naturally to develop that sympathetic and understanding attitude which is so essential to his future work. The psycho-analytic school would certainly suggest that such a choice of a career was by no means accidental and that the rôle of psychotherapist was assumed through unconscious factors related to possible disharmonies within himself.

Early Experience of Psychotherapy.

My experience of psychotherapy dates back a good many years, and I have a vivid recollection, painful now to recall, of the out-patient work at a hospital where a large majority of the cases manifested neurotic symptoms. It was my especial privilege to see the old cases, repeating their prescriptions, hearing the statements that they were just the same, and making encouraging remarks which, I fear, though well meant, had little or no faith behind them. The medicine almost invariably was the same. Some form of bromide to soothe the nervous system and some liquid extract of cascara sagrada to eliminate, slowly but surely, the toxins which were supposed to be the root cause of the trouble. Thus depressions, obsessions, phobias, anxiety states, and minor psychoses were treated, and not infrequently these patients continued to attend for years, such was their faith.

Notwithstanding the very poor results that were obtained, it is of interest to realise that the physician nevertheless remained loyal to his conviction that auto-intoxication was the essential *fons et origo* of neurotic disorder. One fears that it is only too common to build up a theory upon very meagre data and retain belief in it in the face of opposing clinical evidence. These were the days in which enthusiastic psychotherapists—and there then were not many—were ardent advocates of hypnotic suggestion as a curative measure. Lloyd Tuckey and Milne Bramwell in London, stimulated by the work of Liébault, of Nancy, had become pioneers in this method of treatment, and I well call to mind how, in my fervour, I heralded it as the panacea for all mental ills. The potent effect of a strong belief and supreme confidence was such that I found it remarkably easy to produce hypnotic effects in the great majority of people, and my great faith in its therapeutic efficiency undoubtedly was a powerful factor in bringing about the highly favourable results obtained. In hospital out-patient work at that period, however, the authorities did not look upon hypnotic practice with any kindly eye, so that my remedial efforts in that direction had but very limited sway.

It is of psychological interest to note the fact that in later days when psychopathology became founded upon a more rational basis and its knowledge extended by scientific mental analysis, I lost that blind faith in hypnosis and consequently much of my capacity to produce its phenomena. This has been the experience of others who have been in a similar position. Millais Culpin in his "Recent advances in the Study of the Psychoneuroses" states that "he has been assured by practitioners who have passed through the stages of therapy in which they used hypnotism that, after becoming convinced of the complexity of unconscious processes, they have lost that confidence which is necessary to the successful hypnotist." He believes, too, that a deeper knowledge of psychopathological processes is definitely a hindrance to the method of intensive persuasion, and he frankly admits that he has now lost the faculty he once possessed of thus quickly removing hysterical symptoms. Such reflections confirm that element of truth in the almost cynical statement that it does not matter in the least what form of treatment you carry out to cure a neurosis as long as your belief in it is a sincere and confident one. It seems, then, that the faith must be inherent in both doctor and patient for the best chance of success.

An Out-patient Clinic.

For the past six years I have had psychiatric out-patient experience at the West End Hospital for Nervous Diseases, and at this particular juncture it may be helpful to some extent if I add my quota of knowledge to those of others. The patients primarily are seen by the neurological physician who sends on to me those cases that are presumably so-called functional in nature, and the suitability or not for psychotherapy is left entirely in my hands. The character of the case may be a subject of discussion between us or be so evident that none is required. At any rate, a thorough physical examination has been made, which is not only essential for my purposes, but gives the patient the satisfaction of knowing that his body has duly been taken into consideration. His symptoms may be purely somatic, but even when mental it is probable that he ascribes them to some bodily cause. My later assurance that his troubles somehow originate in his mind is thereby much more likely to receive credence.

Let me say at once that I always insist on using the term "mental" to patients notwithstanding the repulsive signification the word popularly has. The stigma attached to it, though it has deep roots, is only going to be lessened by familiarity and education. In the course of time, if certification were as common in mental disorder as it is for infectious fevers, its sting would soon become attenuated.

to me that the new Mental Treatment by its policy of only carrying out the procedure certification as a last resort is a weak pandering popular clamour, which will *eventually render* stigma all the more severe. For the same reason out-patient clinics should frankly be named l" and not disguised by such terms as ervous." When I use the right method of h I seldom have any difficulty in making patient recognise that his trouble *is* mental, that his symptoms are only an exaggeration of depressions, anxieties, and obsessions that I am elf *sometimes a victim to in a minor degree.*

Time and Organisation.

Perhaps the first factor in out-patient work that es one is the amount of time that has to be ed to the individual case. In the preliminary the whole period naturally has to be devoted taking a longitudinal survey of the life-history. e at once we recognise the dire necessity for a d social worker to assist the psychiatrist in well-organised clinic. Such a worker would see case first and have an adequate psychological ry of the patient drawn up so that the psychiatrist uld at once have the data before him, and he would in a position to sum up the type of individual is dealing with, quickly form some idea of the thological processes at work, and decide on the thod of treatment. When there is so much human terial to be dealt with it is highly regrettable t so much of the psychiatrist's valuable time is sted in doing work that others might easily have eady accomplished for him. It is only too patent t the social worker as an ally is more or less lispensable in an out-patient psychiatric clinic. ere is not only the preparation of preliminary tes but the investigation of the home environment, ks with relatives, and the carrying out of the rious helpful measures which should lead to a more ble adaptation. The absence of this source of operation has been a very severe handicap at the est End Hospital. Doubtless in the not far distant ture its sphere of usefulness will be correspondingly reased by the addition of some such organisation. Though cases naturally vary a great deal, during first few visits at least half an hour must be voted to each one. Later on a few minutes may fice *for all that is necessary.* Having gained an equate insight into the origin and meaning of his ability, the patient will only need encouraging urances, a few brief suggestive remarks, and npathetic urges to face reality and overcome life's ficulties. The numbers seen at any one session ctuate to some extent, depending upon how many h cases are referred to me. I have found that system of the neurologist passing on what he ards *as* suitable case *material* works very well. ch depends, of course, upon the neurologist, his itude to mental medicine and his consequent ws on psychotherapy. Without a harmonious operation between him and the psychiatrist grave ficulties are bound to arise. In this respect I have en extremely lucky and everything has worked oothly.

Scope of Psychotherapy.

It would serve no *useful purpose to discuss the* es of psychopathological disorder that have sented themselves for advice and treatment. esumably they fall more or less into the same egory in most out-patient clinics. Naturally at a spital devoted to "Nervous Diseases" one does t meet with the same number of psychotic cases t would be seen in a clinic that was called Mental." Nevertheless, one occasionally sees ipient *schizophrenics and* those who manifest nptoms depending upon a constitutional schizorenic make-up. Mild manic-depressive depressions ve been by no means uncommon, and it is my perience that in a large number of cases, notwithnding one's preconceived views of their differentian from psychoneurotic depressions, only prolonged observation will *render the diagnosis* at all certain. Assuredly a marked factor pointing towards the former group *is the tendency to little or no response to psychotherapy.* *Quite rightly* the early treatment of psychoses is the ideal aim of mental medicine, and one *of the main* purposes of the new Mental Treatment Bill is to further this purpose. Nevertheless, it is hardly possible if we speak scientifically, *to assert* that, in the present state of our knowledge, psychotherapy—at any rate in any out-patient department —has any appreciably beneficial effect in the psychoses. Such cases may improve while in our hands and we naturally like to think that the change for the better has arisen through our efforts. Yet I would advocate such cases attending clinics from time to time in order that they may be kept under observation, and attempts made to keep them in touch with reality. Amongst the psychoneurotic patients—though every degree and variety has been met with—by far the most prevalent have been anxiety states and what one might term situational maladaptations of all sorts. There is no need to go into any details, but it is of interest to record the bare facts of one's experience. Perhaps somewhat surprisingly the cases of conversion hysteria have been comparatively few. Whatever type of case we may be dealing with, I have been long convinced that commonly too much is expected of psychotherapy, both by the patient and the ordinary physician. It is the individual and his special type of mental constitution that is of importance. In an out-patient department of an ordinary hospital the number of chronic sufferers from chronic physical ailments who find little or no relief must be fairly numerous, notwithstanding the most skilled attention. Yet where psychotherapy is concerned similar results are too commonly looked upon as due to lack of knowledge and competency on the part of the psychiatrist.

In the same way as an individual with a poorly formed chest and general lack of resisting power is bound to suffer from respiratory disorders which no treatment can prevent, so we may have a person with such a psychasthenic constitution that the smallest stresses of life will render him prone to morbid mental symptoms with which the psychotherapist is almost powerless to cope. It becomes, then, one's first duty in out-patient work to sum up the type of human material one is dealing with in order that hours may not be wasted. *At the opposite extreme* we meet with those good types that respond to treatment readily. It is such cases that help the psychotherapist to regard himself as of some use in the world and go a long way to mitigate the feelings of helplessness that too often beset him.

Though not infrequently one meets with the persons for whom one can do comparatively little, either because the mental calibre is inherently too poor to mould towards a better condition, or because he is a victim of an environment from which he neither can escape nor adjust to, nevertheless, on the whole it is certain that to the majority of patients enormous benefit accrues. To not a few, the mere fact that the sufferers find a *sympathetic and understanding* listener, are able to give expression freely to their conflicting ideas and feelings, no matter how bizarre they may be, and receive assurances that they are not "going off their head," tends towards relief and helps materially towards a more roseate view for the future. *Affective dis-harmonies, marital* and familial, are often found to be provocative causes of a morbid dissatisfaction with life, while an exaggerated and an unhealthy sense of guilt arising from the conflict between an overscrupulous conscience and sex desire or practice has been commonly the root of mild depressions. There are those cases which are more or less easily adjusted *in a few* interviews, there are others which require *more prolonged* investigation into the individual factors concerned, and those patently needing a far deeper psychological analysis than can be undertaken in out-patients.

Though I am fully assured of the large amount of good that results from out-patient psychiatry, any statistical figures I might try to work out would be worse than useless. There are a few who do not return after their first visit because they feel aggrieved at not being given a "nerve tonic." No amount of persuasion can convince them that some such medication is not a necessity, notwithstanding the fact that, in all probability, their own panel doctor has, over a long period, given them medicine from which no benefit was received. Others who have found relief abstain from further interviews, and those who have seemingly recovered are not followed up later to find out whether their readjustments have been maintained. The employment of social workers would overcome these drawbacks and render information possible which would be of great value.

Type of Treatment.

In discussions on out-patient clinics, the problem of the type of treatment that is best used has naturally been brought up. It seems to me that no psychotherapist worth his salt would lay down any hard-and-fast rules on such a point. Every patient must receive that particular method of therapy that the type of case and attending circumstances necessitate. We should all agree that the scientific method is an analytical one because it is only by such means that the physician can discover the root cause of the symptoms and the patient himself realise their origin. In this way, too, the latter through the insight he has gained is fortified against recurrences. We can, however, be too scientific and provided that we have a correct prospective, the utilitarian viewpoint of the removal of symptoms must be kept in mind. Some amount of superficial analysis is generally possible in every case but, in not a few, lack of intelligence and coöperation and other factors militate against any deeper mental dissection. Freudian psycho-analysis, of course is out of the question because of the time involved. Simple psychological analysis of the life-history, past emotional situations and reactions, will in a large number of cases, when followed by re-education be sufficient to put the individual on the road to recovery. In many others, persuasion, the giving of a new healthful attitude to instinctive feelings and impulses, and the inculcation of a happier philosophy, are the aims to have in view.

It is, I think, a fact that since psychological medicine has advanced upon analytical lines, there has been an exaggerated neglect of suggestive methods of treatment. Both simple and hypnotic suggestion have their uses in appropriate cases. The former may be used in those cases where the intelligence of the patient does not lend itself adequately to analysis and where the time factor comes into consideration. The validity of auto-suggestion is to me a grave matter of doubt, but the practice of what passes for auto-suggestion is certainly of value to certain types of people. Though perhaps it is scientifically a highly questionable procedure to give the patient medicine purely for its suggestive influence, I believe that at times it is permissible and beneficial. Though it has to be realised that to some extent one's object of impressing upon the individual that his symptoms are psychic and not physical is thereby defeated, yet in certain types the faith in a "magic mixture" is so strong that its administration has a vast suggestive effect. It may go against the grain to act thus therapeutically and the psychotherapist may feel he has fallen from his high estate, but in out-patient psychiatry it is at times warranted. Especially is it important I think to employ the method of suggestion for the older-established and more chronic neurotic disorders where analysis is likely to be only time wasted. It is in the slighter and more recently developed cases that the amount of analysis that can be carried out in such circumstances is likely to be really fruitful.

Hypnotism, too, has suffered a somewhat undeserved setback through the advent of analytical methods. Unfortunately, as I have previously stated, I have found my capacity to produce hypnosis much lessened in recent years through my loss of faith in its wide application. Yet, when some degree of
dissociation is already present, as in cases of fug
amnesia, and dual personality, I have usually f
no difficulty. It is, too, in these types of me
disturbance that hypnotism is specially indica
Where no objection exists on the part of the pat
its use might with some advantage be more adop
provided other and perhaps more rational m
are not feasible.

Presence of Students.

The question of teaching and having stu
pre- or post-graduate ones, has never arisen at
West End Hospital. It is a point, however,
serious consideration. It is certainly necessary
students to hear psychological histories, to u
stand the methods of approach to the types of
met with, and gain some insight into the sp
atmosphere that should be created in a psych
out-patient department. There is no serious obje
perhaps, to their presence at the preliminary i
view, though even then there are not a few pat
who will feel diffident and timorous in speakin
their inner lives before others. In the later
when the most intimate details of the min
necessarily to be freely vented, it would seem ess
for the psychotherapist to be alone with the pa
The establishment of a rapid transference s
be the aim in view and such "rapport" is nat
greatly hindered when others are present. W
note an evident reluctance to be frank and
I make a point of drawing attention to the
that there is absolute privacy, that everythi
treated confidentially, and that these ho
arrangements are made in order that there sh
no barriers to a free outlet of feelings to sympa
and understanding ears. It is only through
seclusion from others that the neurotic suffer
encouraged to speak openly to another of ma
which he hardly liked to tell himself. It is, ther
patent that the attendance of others will,
certain stage of treatment, be a great handica
the very essence of one's psychotherape
endeavours.

There is no reason why, when suppressions
repressions have been overcome, insight gained
progress made towards readjustment, the case s
not be reviewed before students who can then
the steps that have been taken to unroll the evo
of the symptoms and the treatment that s
rationally be adopted. Even then, it would b
to obtain the patient's concurrence first, in
that he should not feel that his confidence in an
was being betrayed. There are, however, some
who do not feel so hesitant to talk freely
others and these could be selected for demonstr
purposes. The whole question is beset with di
ties, but many of them can be surmounted
experience and good organisation.

Value of the Work.

The mental out-patient clinic should prov
important step in a progressive hygiene move
By its means it is hoped that a very large suf
section of the community will be rendered
effective and happier citizens. The social loss br
about through neurotic disability must be far he
than is ordinarily supposed. We often tend to
very glibly about the prevention of mental di
but at present we have quite insufficient cr
to go upon before we can make any claim that
patient clinics will appreciably affect the inci
of psychotic disease. It may be said that its
causes are in the main more biological and
than individual. Nevertheless, any aid tov
healthy adjustment to life's problems is to be s
for. The education of the public on all that apper
to them will do incalculable good and the out-pa
clinics should constitute an excellent nucleu
that end.

It has been much a matter of debate whethe
development of such clinics should be indepen

or in connexion with general neurological or general hospitals. There is a good deal to be said in favour of each view, but it would take me too far afield to discuss the point. I can see no reason why a psychiatric clinic should not be organised in all these different spheres. The great factor essential to the ideal one is that there should be ample opportunity for team-work, if necessary, and that there should be intimate coöperation with other branches of medicine and surgery. *Psychological medicine must* not stand out as an isolated department of knowledge. Were it not for the inevitable question of finance, all other difficulties would soon be swept away.

LECTURES FOR MOTHERS.

DURING the past few years a great many lectures have been arranged for the mothers of elementary school-children, with the object of helping the parent meet the difficult questions propounded by the child. The mothers who send their children to private and public schools are asking why similar help cannot e given to them, and in response to this demand the National Council for Mental Hygiene and the British Social Hygiene Council are jointly arranging a series of four lectures to be given on the mornings of Feb. 23rd, and March 1st, 8th, and 15th at 11.15 A.M. at the Ladies' Carlton Club. The lecturers are Sir *J. Arthur Thomson, Dr. Elizabeth Sloan Chesser,* Prof. Winifred Cullis, and Dr. H. Crichton Miller. At each lecture a physiological film will be shown, but need not necessarily be seen by those who do not care for films. Ample time will be allowed for questions. To help the funds of the Councils a fee of one guinea is to be charged for the course. Medical men are asked make these lectures known to those of their patients who would welcome them.

EARLY ENGLISH DRUG JARS.

AN ardent amateur collector of English delft are of the seventeenth and eighteenth centuries s placed us in his debt for a fascinating account drug jars, or apothecaries pots, posset pots, candle ps, wine cups, and wine jars, and describes also ll slabs and a barber's bowl of 1683.[1] The work admirably illustrated by 23 plates of which two e in colour, the rest in monochrome; the objects rtrayed being for the most part from Mr. Howard's ivate collection. He acknowledges valuable help ceived from published works and from experts tached to the various museums, explaining that e chief object of his book is to help others who may possessed of similar pieces of what is usually lled Lambeth delft to date these articles. To is end he has made a careful detailed chronological rvey of the evidence, and this survey is the more lpful *since many of the pieces illustrated are* ted. The book is more than a work of reference d a guide, for Mr. Howard has a happy flair for scribing the form and decoration of his treasures d of conveying something of the charm of these aint homely products *of the old English potters* d their decorative artists. Mr. Howard boldly dertakes the differential diagnosis between a sset pot and a candle cup. The dictionary defines posset as "a dietetic mixture consisting of milk rdled with an acidulous liquor such as wine, ale, vinegar." Mr. Howard remarks that "this rious and repellant liquid seems to have been very pular with our hardy forbears." Candle was y warm drink for an invalid. While both beverages re probably drunk out of vessels with corners, Mr. ward thinks that the English were the first to vent vessels with the spout springing from the se and drawing the liquid from the bottom—e candle cup—precisely in the form of the modern alid's feeding cup. Posset pots appear to have had the spout higher up, and to have been the precursors of the teapot.

Chapters of particular interest to medical readers are those dealing respectively with seventeenth century drugs, and with the inscriptions on the jars, to which an excellent key is *supplied by* Mr. C. J. Thomson, in a glossary. It is disappointing that so far no jars have come to hand bearing labels indicating that they were employed for "oil of foxes" or "oil of puppy dogs"; nor has any suitably *inscribed receptacle* been found for storing "Viper lozenges" which, according to Mr. Howard, were a renowned specific for the plague. On the other hand the Howard collection includes a seventeenth century drug jar of Lambeth delft inscribed P. MACRI which appears to be the powder of a Peruvian bark used as a febrifuge and introduced into this country about the same date as cinchona. This must be the gem of the collection.

TUBERCULOSIS SCHEMES.

A HANDBOOK issued by the National Association for the Prevention of Tuberculosis[1] of which the price has been reduced in the sixth edition from 7s. 6d. to 5s., provides a complete directory of tuberculosis work throughout the country. It contains reliable information on the operation of tuberculosis schemes in Great Britain and Ireland, also the only published list of tuberculosis officers and the only complete list of residential institutions in the country. The volume forms an indispensable work of reference for all engaged in the campaign against tuberculosis and in social work generally. It is the only book *wherein practitioners can see at a glance* what machinery exists for the treatment of the disease in any given area.

EGGS AS GERM-CARRIERS.

FOLLOWING on Dr. O. Horwitz's letter in our issue of Sept. 19th (p. 662) describing bacterial infection of duck eggs, Dr. R. L. Wason (Bath) writes: "I have only once found a foreign body in an egg. It was a grain of maize, perfectly black." We submitted this remarkable observation to Prof. F. A. E. Crew, director of the Institute of Animal Genetics at Edinburgh, who writes: "I think it would be possible to find a grain of maize in a hen's egg, although I *have never before heard of such a thing happening.* The maize might get into the cloaca, and thence up the oviduct and become incorporated in the egg. This would be quite a likely explanation of your correspondent's experience."

ELEPHANTIASIS OF THE SCROTUM.

Mr. St. John Ward, professor of surgery in the American University of Beirut, Syria, writing on *the operative treatment* of Elephantiasis of the Scrotum,[2] states that in 90 per cent of cases of elephantiasis arabum no microfilariæ can be demonstrated in the patient's blood, and that doubt has therefore been expressed as to whether the condition can *be definitely attributed to filariasis. He believes* that it is undoubtedly an infection and he describes the clinical manifestations in detail, noting that after the febrile attacks have ceased—indeed, even years later—the *localised lymphangitic area shows characteristic pathological changes. In scrotal* elephantiasis surgery offers great relief to the sufferers, he says, and is attended with great success in the hands of experienced operators. It is interesting to note that Mr. Ward favours spinal anæsthesia in these cases, and *as the operation is a long one* he advocates subarachnoid injection of tropococaine

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Early English Drug Jars. By Geoffrey Eliot Howard. ndon: The Medici Society. 1931. Pp. 50. 10s. 6d.

[1] Handbook of Tuberculosis Schemes for Great Britain and Ireland. Sixth edition. National Association for the Prevention of Tuberculosis. 1931. 5s.

[2] Comptes Rendus du Congrès International de Médecine Tropicale et d'Hygiène. Tome III. Published by Mohamed Bey Khalil, M.D., M.R.C.P., Secretary-General of the Congress. Imprimerie Nationale, Cairo. 1931. Pp. 1095. P.T. 50.

to avoid the danger of anæsthesia passing before completion. In his paper, which was read before the Congress of Tropical Medicine in Egypt, he gives a concise account of the steps in the operation, and sums up as follows: (1) elephantiasis arabum is a local infection of certain parts of the body, the exact nature of the infecting agent being unknown, though *F. bancrofti* is suspected; (2) thorough removal of the infected tissue in elephantiasis of the scrotum in all probability arrests the disease; (3) the testes should be preserved even if they appear to have undergone cystic degeneration; (4) plastic repair of the scrotum gives satisfactory results.

INDIAN JOURNAL OF MEDICAL RESEARCH.

To the October number (Vol. XIX., No. 2) King and Pandit contribute an elaborate account of the rat-flea survey of the Madras Presidency, with a discussion on the association of flea species with climate and with plague. The pathology of epidemic dropsy is discussed in a paper by Shanks and De which is illustrated by coloured plates and photographs. An intensive investigation by Shortt and Swaminath into the life-history of *Trypanosoma phlebotomi* is recorded in detail. Among other contributions Hughes and Shrivastava offer observations on anæmia in patients with enlarged malarial spleens, Barraud describes eight new mosquito species of Indian culicines, and Row writes on agglutination in leishmaniasis.

BOURNVILLE CHOCOLATES.

WE have received from Messrs. Cadburys Bros., Ltd., representative samples of their fine chocolates, for which they expect, intelligently, considerable demand at this season. The samples submitted for our appreciation are the following well-known productions of the firm—Brazil Nut Milk Chocolate, Regent Chocolates, King George Chocolates, and an elegantly put up delicacy called "Crystal Assortment." We have received at the same time a Pocket Box of the firm's Milk Tray Chocolates, a tin of Bournville Biscuits, and a canister of Cup Chocolate. It may be that most of these wares are old favourites, but that only shows that their composition, flavour, and method of distribution are appreciated.

Vacancies

For further information refer to the advertisement columns.

Accrington, Victoria Hospital.—H.S. £150.
Bedford County Hospital.—First H.S. At rate of £165.
Birmingham, Midland Hospital, Easy-row.—H.S. £150.
Brecon, Breconshire C. C.—County M.O.H. £800.
Brighton, Royal Sussex County Hospital.—Cas. H.S. £120.
Burnley, Victoria Hospital.—Two H.S.'s. Each at rate of £150.
Bury Infirmary, Lancs.—Third H.S. At rate of £150.
Cumberland C. C.—M.O.H. £1100.
East Ham Memorial Hospital, Shrewsbury-road, E.—Hon. Surgeon to Orthopædic Dept. Also Physician to Skin Dept.
Edinburgh, Royal College of Physicians.—Kirk Duncanson Fellowship for Medical Research. £150.
Exeter, Royal Devon and Exeter Hospital.—H.P. and H.S. Each at rate of £150.
Folkestone, Royal Victoria Hospital.—Sen. and Jun. Res. M.O.'s. At rate of £125 and £100 respectively.
Halifax, St. Luke's Hospital.—Med. Supt. £800.
Harrogate, Royal Bath Hospital.—Res. M.O. At rate of £156.
Hôpital Français, 172, Shaftesbury-avenue, W.C.—Jun. Res. M.O. At rate of £100.
Hospital for Sick Children, Great Ormond-street, W.C.—Part-time Jun. Cas. O. At rate of £150.
Indian Medical Service.—European Officers.
Ipsw[illegible] East Suffolk and Ipswich Hospital.—Cas. O. £120.
Khar[illegible] Wellcome Tropical Research Laboratories.—Bacterio[illegible]. £E.660.
King [illegible]rd Memorial Hospital, Ealing.—Sen. Res. M.O. £250.
King[illegible]n, West Norfolk and King's Lynn General Hospital.—H.P. At rate of £150.
Leicester Royal Infirmary.—H.P. At rate of £125.
Leigh Infirmary, Lancs.—Res. H.S. At rate of £175.
Liverpool, St. Paul's Eye Hospital, Oldhall-street.—H.S. At rate of £145.
L.C.C. Hospitals.—Asst. M.O.'s. Each £250.
London Lock Hospital, 91, Dean-street, Oxford-street, W.—H.S. At rate of £200.
Margate, Princess Mary's Hospital for Children.—Res. Med. Supt. £950.
Milford, Surrey, County Sanatorium.—Third Asst. Res. M.O. £350.
Newcastle-upon-Tyne, Hospital for Sick Children.—Hon. Surge
Queen's Hospital for Children, Hackney-road, E.—H.S. and Cas. O. Each at rate of £100.
Radium Institute, Riding House-street, W.—H.S. At rate of £150.
Retford, Notts, Rampton State Institution for Mental Defectives.—Med. Supt. £1000.
Royal Earlswood Institution, Redhill, Surrey.—Jun. Asst. M.O. At rate of £250.
Royal Eye Hospital, St. George's Circus, S.E.—Three L.C.C. Refraction Appts. Each £80.
Royal Free Hospital and London School of Medicine for Women, 8, Hunter-street, W.C.—Bacteriologist. £500.
St. Mary's Hospital, W.—Med. Reg. £200.
St. Thomas's Hospital.—Two Asst. Surgs. to Ear, Nose, and Throat Dept.
Salford, Hope Hospital, Pendleton.—Asst. Res. M.O. At rate of £250.
Salvation Army, Mothers' Hospital, Lower Clapton-road, E.—Jun. Res. M.O. At rate of £60.
Sheffield, Children's Hospital.—H.P. and H.S., and Cas. O. A rate of £100 and £80 respectively.
Sheffield Royal Infirmary.—Ophth. H.S., Asst. Aural and Opht. H.S., and Asst. Cas. O. Each at rate of £80.
Swansea General and Eye Hospital.—Cas. O. £200.
Winchester, Royal Hampshire County Hospital.—H.S. At rat of £100.
Wolverhampton, Royal Infirmary.—H.S. At rate of £100.
Wrexham and East Denbighshire War Memorial Hospital.—Re H.S. At rate of £150.

The Home Secretary gives notice of a vacancy for a Medic Referee under the Workmen's Compensation Act, for th Districts of Maidstone and Ramsgate (Circuit No. 43) an Tonbridge and Tunbridge Wells (Circuit No. 56) Count Courts. Applications should reach the Private Secretary Home Office, Whitehall, S.W., not later than Jan. 16th.

Births, Marriages, and Deaths

BIRTHS.

HARDING.—On Dec. 15th, at Bexhill-on-Sea, to Norah Harding (née Rodkin), M.A. Oxon., L.R.C.P., L.R. Edin., L.R.F.P.S.Glasg., the wife of W. G. Harding, F.R.– of a son.

NICHOLSON.—On Dec. 14th, at St. Peter-street, Tiverto Devon, the wife of George Nicholson, M.D., F.R.C.S. Ed of a son.

TOMS.—On Dec. 10th, at Welbeck-street, W., the wife of D Humphrey W. Toms, of Bangkok, Siam, of a daughter.

WELLS.—On Dec. 14th, at West Bar, Banbury, the wife Clement John Lethbridge Wells, M.B., of a son.

DEATHS.

BROWN.—Andrew Brown, M.D.St. And., M.R.C.P. Edin., o Dec. 21st, 1931, in his 91st year, at Hatch End, Middlese

GABRIEL.—On Dec. 18th, at King-street, S.W., Leonard Mauri Gabriel, M.D., aged 67.

REID.—On Dec. 17th, at Craigsheen, Carmunnock, Glasgow William Loudon Reid, M.D., J.P., ex-President of th Royal Faculty of Physicians and Surgeons, Glasgow, his 87th year.

LINDSAY.—On Dec. 14th, in a nursing home, Belfast, Prof. Jam Alexander Lindsay, M.A., M.D., F.R.C.P. Lond., aged 75.

PICKERING.—On Dec. 16th, at Upper Berkeley-street, W Rowland Neville Umfreville Pickering, M.R.C.S., L.R.C.P. L.S.A.

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